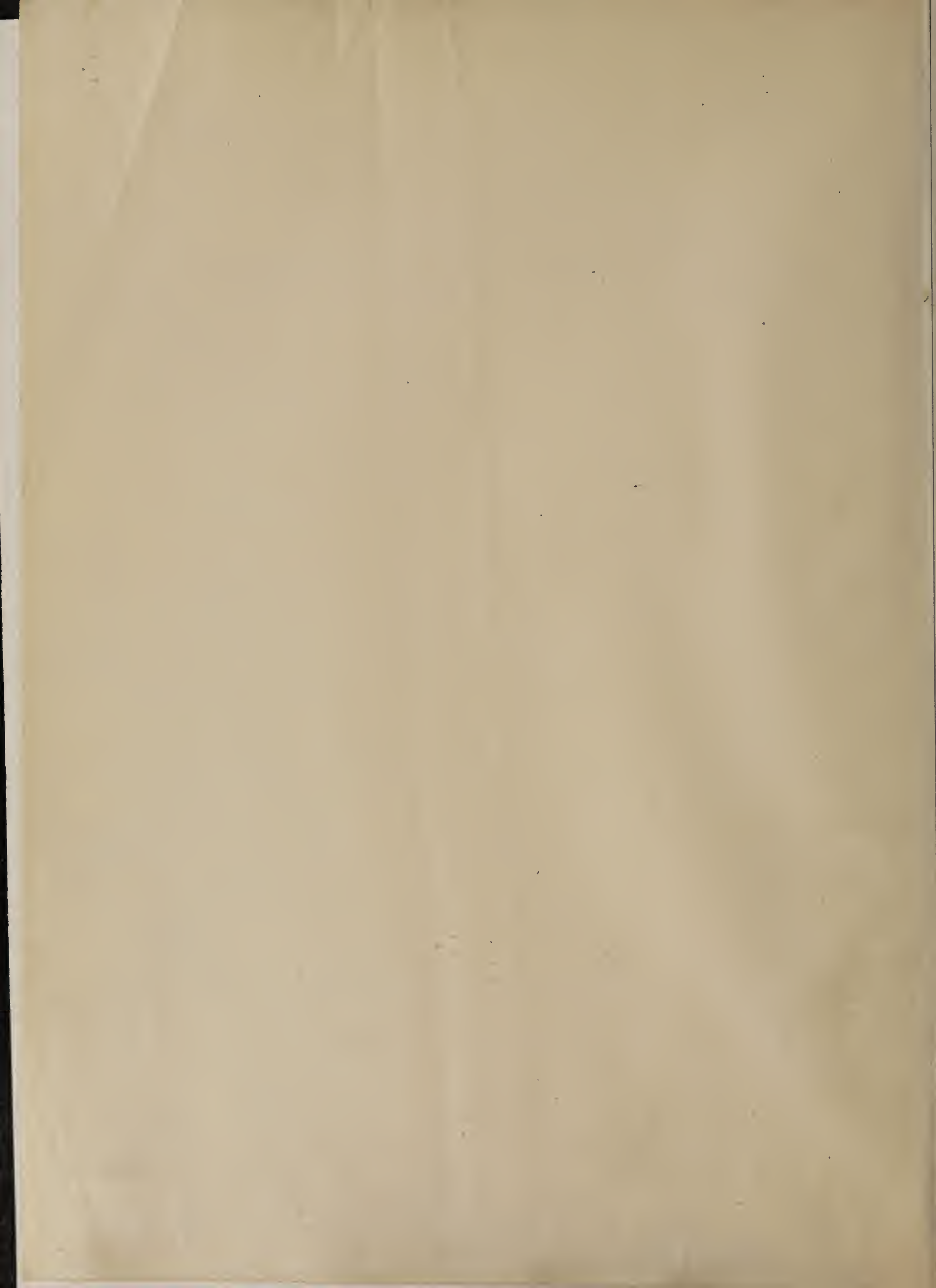




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# The finance and Commerce of Boston and New England

CONTAINING

ACCURATE AND COMPREHENSIVE  
TREATISES ON THE FINANCIAL,  
PROFESSIONAL AND COMMERCIAL  
INTERESTS OF BOSTON AND  
THE NEW ENGLAND STATES

PUBLISHED BY THE

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*PROFUSELY*



*ILLUSTRATED*

The intention of this Work is to bring to the notice of the World the gigantic manufacturing interests and immense resources of the New England States and those financial, professional and commercial firms, corporations and individuals whose business acumen has contributed to make us the first nation of the World

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# New England's Achievements in Business Success Wrung from Scant Native Resources.

THE GREATEST MANUFACTURING SECTION OF THE UNITED STATES—A VIGOROUS AND INGENIOUS PEOPLE—THE BEGINNING AND DEVELOPMENT OF THE FACTORY SYSTEM—THE MOST SOLIDLY PROSPEROUS REGION IN CHRISTENDOM.



HERE are no gold fields, no mines of precious stones, no great deposits of coal and iron, in the rugged country that forms the northeast corner of this broad republic. Nowhere within the boundaries of the United States has less wealth been made ready for man by nature than in New England—and yet nowhere has more wealth been accumulated. The people of the six New England States, and especially of the most important and most characteristic Commonwealth of Massachusetts, are reputed to be the richest people in the world. They wrung their first earnings out of their cold sea and sterile acres. They have made the utmost of their own scant native resources. But they have shown an extraordinary power to take the raw materials of other and less vigorous and ingenious people and turn them to profit on their own account.

New England grows no cotton, and yet it is the greatest cotton manufacturing region in America. It grows very little wool, and yet it makes more woolen and worsted fabrics than any other like area in the New World. It draws the hides for its leather and its boots and shoes from distant States and foreign countries. It makes the whole globe tributary to its busy manufactories, and the whole globe furnishes a market for its finished goods.

In New England's early days of poverty, when she could not freight her own ships, she became the carrier for others. This genius for the great trade of transportation has long been almost a New England monopoly. Everybody knows that New England led for two centuries in the building and sailings of ships, but it is not so well known that the Middlesex Canal from Boston Harbor to the upper Merrimac antedated by many years the Erie Canal, or that a four-mile line from the Quincy granite quarries that carried the stone for Bunker Hill Monument down to the sloops wait-

ing to cross the bay, was the earliest railroad on this Continent. A steam railway from Boston to Worcester was completed as early as 1835, and in 1841 it was pushed through to Albany. The lines to Providence and to Lowell came into operation about the same time, and the locomotive and its train soon began to compete with the sailing coasters and steamboats along the Eastern Road to Portland.

## factory System Begun.

Even before the coming of the railroads that now pierce almost every important river valley in the six States, New England had begun to develop what is perhaps its most important contribution to industrial America—the modern factory system. Up to 1814 the cotton factory confined its energies to spinning yarn to be woven into cloth on hand looms in the homes of the people. The first application of power to the spinning of wool was made in Rhode Island in 1819. There were alert men who saw the great opportunity thus opened to New England, with its abundant water courses. Power was applied to the complete manufacturing of cotton fabrics, first in the factory at Waltham and afterward at Lowell, in 1823.

Daniel Webster's prophetic vision saw in these factories an influence that was destined to change the whole face of New England. But the calamity which he mourned was a blessing in disguise, and the great statesman and orator lived long enough to acknowledge it. In his young manhood, and down, perhaps, to the year 1830, shipbuilding, navigation and commerce had been New England's paramount industries. Thereafter they gradually became subordinate to manufacturing, not because they decreased, for they did not, but because of the vastly swifter expansion of the new interest. Shipbuilding and shipowning grew and prospered in New England until 1855. It was not until then that there began the long and mel-



ancholy decline that has now left but a ghost of the oldest and most historic of New England's great vocations.

It was the water power of innumerable deep streams rushing down mountain-side or hillside that gave New England her first opportunity for manufacturing. Coal and steam machinery in the early days were too costly for general use, but water to turn a mill wheel could be had for the building of a dam. The configuration of the country, with rivers relatively narrow confined between high, firm banks, and breaking over natural falls where the waste water could be easily disposed of, was all-important to the pioneers in the great mechanical enterprises that have made the names of Lowell, Jackson, Lawrence and Appleton famous throughout the land, and won great fortunes for the descendants of these men of larger brain and keener courage than their fellows.

### **A Trinity of Interests.**

To this wealth of water power happened to be united the other essential advantage of an active and thrifty population, inured to toil in a climate where hard labor was possible all the year around. The opening of the great West would have ruined New England if agriculture had been her main reliance, nor could her inland communities have lived on commerce alone. It is the trinity of interests, all well maintained—agriculture, commerce, manufacturing—not conflicting with, but sustaining and complementing one another—that has made New England the most solidly prosperous region in all Christendom.

It was to the textile interests—to the making of cotton and woolen fabrics—that the New England attention was chiefly turned in the first years of the factory system, and these two interests have ever since been kept pre-eminent. The aptitude for this business that was developed, particularly in Massachusetts and Rhode Island, was a natural heritage of Old England ancestry. Lowell, Lawrence, Providence soon became centres of large production, but the great towns did not monopolize the profits of the new departure. These towns were fortunate in having access to the cheap carriage of the sea. Further inland, however, on rivers that were not navigable, in valleys that canals did not reach, factories, small but ambitious, grew up as if by magic. For half a century and more, before the present magnetic force of consolidation made itself felt, these neighborhood industries, each driven by a little stream, employing a few dozen or few score operatives, and furnishing the lifeblood of a hamlet of a few hundred souls, were as characteristic of New England as its pine forests and its granite hills. A great capital was not then indispensable. The wayside shop of some mechanic more energetic

or more prudent than his comrades easily grew into a little mill, and the little mill into a greater one. These neighborhood industries were usually owned by one family, often by one individual, seldom by an impersonal corporation. The head of the enterprise was known by everyone of his work-people. Relations between employer and employed were close and kindly. The "help" in the mill were self-respecting and independent, and such things as strikes and lockouts were almost unknown.

### **Changing to Corporations.**

Of course, this condition was too Arcadian to endure. The general growth of business made inevitable the steady substitution of corporate for individual ownership. Before the Civil War New England manufacturing had taken on its distinctly modern phase. The little country mills were not increasing so rapidly as the big mills of the towns, where coal for steam power was available. To Lowell and Lawrence had been added, in Massachusetts, Fall River and Taunton and other towns, in New Hampshire, Manchester and Nashua, and in Maine, Saco, Biddeford, Lewiston and Auburn. The manufacturing of Rhode Island had spread from Providence all over the area of the smallest of the States. The leather and boot and shoe industries, long almost a New England monopoly, had grown to immense proportions. Heavy iron manufacture felt the sharp competition of Pennsylvania, but the lighter forms of iron and steel fabrication which called for higher skill were going on with gathering momentum. Worcester was and is the centre of this noble industry.

### **The Place of Agriculture.**

Meanwhile the oldest and most elementary of human occupations had not really declined in the New England States. Agriculture had not shrunk; it had merely changed its character. Here and there were abandoned farms, but in many cases they were farms that might wisely have been abandoned long before. As Senator George F. Hoar has pointed out, the chief thought of the pioneer husbandman, as the settlements pushed out from Boston and Plymouth and Portsmouth on the sea toward the interior of the colony, was not where he could be most prosperous, but where he could be safest. That is why so many gray old farmhouses are clinging to the bare sides of the New England hills; where the soil is thin and rocks are the only crop that never fails to spring up in the furrows of the plowman. Up and down the smooth surface of the valleys ranged the war parties of French and Indians seeking scalps and plunder. In his perch on the ledges far above them the settler was out of their direct path, and his eagle eye could discern their



coming. For years after Wolfe and Montcalm died together on the Plains of Abraham, and the dreadful savages no longer came skulking down from the northern wilderness, the yeomen still hung to their rocky lands by force of habit. It was only when the factory system gave them a home market in every village that they discovered that a small farm in the rich valley was better than a great farm on the hills.

Instead of wheat and corn the New Englander now makes his money out of milk and butter and vege-

ers are aptly described by that fine, homely word, "forehanded." The average annual income of the farmers of Massachusetts is said to be between nine hundred and a thousand dollars. Nearly all of them own their estates; the rented farm is still unusual. Many of these "forehanded" men are capitalists on a small scale. They are the depositors of the savings banks, or they have money loaned out on judicious mortgages. A very large proportion of the New England funds that have gone to the upbuilding of West-



MASSACHUSETTS STATE HOUSE.

*This building is the best example of the work of Charles Bulfinch, the original Boston architect, who did so much to improve the architectural appearance of his native city. Now, with its gilded dome, it is a conspicuous object in the landscape, from any point, whether from land or the harbor. Enlargements and renovations have met the increased demands of years, but the original shape and general appearance have been consistently maintained.*

tables and fruits. He finds it cheaper to buy his grain in the West and to grow crops that yield a greater profit to the acre. Vermont has become the most famous of dairying States, and Massachusetts agriculture of the modern type boasts a product of fifty million dollars annually. Even the abandoned farms are coming back to cultivation for at least their grass and hay, or are returned to the Assessors' lists as the summer homes of city families. New England farm-

ern cities and the opening of rich prairie lands has come from the boulder-strewn New England fields and pastures that are the derision of the prosperous grangers of the Dakotas and the Pacific slope.

Thus New England agriculture has not been effaced by manufacturing. The two interests are not antagonistic; they have thriven and increased side by side. So, too, with commerce. It has changed its form. It no longer means shipbuilding and navigation, of which,



save in the protected coasting trade, there is indeed only a remnant of New England's ancient glory. But never before were so many New England products shipped year after year to foreign markets. Boston, of course, is the great New England port, though Portland has now climbed to a respectable place, and the statistics, given elsewhere, of the expansion of Boston's overseas trade are fairly eloquent.

### **Achievement in Manufacturing.**

It is in manufacturing, however, that New England most conspicuously excels. No people in the world make so many different articles, and make them all so well. It must not be thought that the industrial and economic energy of the busy area between the St. Croix River and Long Island Sound is altogether absorbed by textile fabrics and boots and shoes, though these products are head and shoulders first in importance. It was New England that developed the first practicable elevator, the earliest satisfactory machine-made watches, the first American pianos to win critical approval, the admirable parlor organs, that now go all over the world. It is Yankee skill that has brought firearms to their greatest perfection. It is Yankee workshops that produce the finest cutlery. It is Yankee ingenuity that has shown how many wonderfully useful things can be made out of the soft, clean wood of the ordinary pine or spruce tree. Until a few years ago a familiar sight on the Boston wharves was the shipping of a complete house, all ready to be set up in far away Australia.

There are five and one-half million people in the six New England States, or only one-fourteenth of the inhabitants of this great Union. But they make one-third of all the cotton goods made in the United States, one-third of all the woolen and worsted goods, perhaps one-half of the first-class boots and shoes. Maine, with 694,000 people, has \$123,000,000 invested

in manufacturing, an annual product of \$84,000,000, and 74,000 factory wage-earners. New Hampshire, with about 400,000 people, has \$100,000,000 invested in manufacturing, an annual product of \$77,000,000, and 70,000 factory wage-earners. Rhode Island, with about as many people, has \$183,000,000 invested in manufacturing, an annual product of \$119,000,000, and 96,000 wage-earners. Vermont, not usually considered a manufacturing State, has \$48,000,000 invested in manufacturing, an annual product of \$40,000,000, and 29,000 wage-earners. Connecticut has a capital of \$314,000,000 invested in manufacturing, an annual production of \$208,000,000, and 176,000 wage-earners. Massachusetts has \$820,000,000 invested in manufacturing, an annual product of \$1,000,000,000, and 496,000 wage-earners in her factories.

Maine's chief manufactures are cotton goods, lumber, paper, woolen goods and shipping. Bath alone has launched four thousand vessels since 1781. New Hampshire's leading manufactures are cotton goods, woolens, boots and shoes, lumber and leather; Vermont's, cut stone, butter and cheese, cottons, woolens and lumber; Massachusetts', boots and shoes, cotton goods, woolen and worsted goods, machines and machinery, leather, metals and metallic goods and paper; Rhode Island's, cottons, woolens, jewelry, tools and machinery; Connecticut's, textiles, clocks, watches, arms and ammunition, sewing machines, hats and paper.

Every quarter of the country, every class of people, looks to New England for some product of mechanical skill, and this fact makes New England's connection with every corner of the land very direct and intimate. It is seldom indeed in all human history that intellectual leadership and industrial leadership have gone hand in hand; that the thinking race has also been the producing and trading race. But such is the extraordinarily broad range of New England's pre-eminence.





# Boston in Proportion to the Population is the most Active City on the Continent.

A CITY OF STRONG, RELIABLE FIRMS AND CONSERVATIVELY MANAGED CORPORATIONS—THE HUB OF THE BUSY REGION FROM THE SEA TO THE CANADIAN BORDER. HER BIG COASTWISE TRADE.



**F**OR two centuries it was Boston's noble harbor, the most spacious on the New England coast, that made the old Puritan town famous and prosperous. That harbor was the handiwork not of man but of nature. The first colonists found this immense land-locked haven with water deep enough to moor the light craft of their day to the forest bank. It was this great room and security which drew thither many of the chief men of the Puritan company that had first settled 15 miles away at Salem. For two hundred years thereafter Boston was a shipping and trading community pure and simple. The first wealth of the town was all drawn from the waters, and this maritime impress Boston has never lost, though its great fortunes in these later years have come rather out of railroads and manufacturing.

When New England half a century or more ago turned from the sea to the mill, it was the counting-rooms and banks of Boston that furnished most of the corporate capital. The promoters of these new enterprises sought abundant water power and cheap land, and for these things it was necessary to go far away from the three hills overhanging the broad harbor, to the swift, deep, fresh streams pouring down from the snow-capped northern mountains. But Boston has always watched with an eagle eye its scattered investments, and the factories and the railroads which its money has controlled have had their real headquarters not far from State street. The Massachusetts laws are inhospitable to poor and feeble concerns, but they have encouraged strong conservatively managed corporations, and a Boston office has long been a kind of hall mark of prosperity.

## Boston the Center.

The textile, shoe and leather and other great manufacturing industries of New England, even if the ac-

tual work is done a hundred or two hundred miles away, look to Boston as the real centre of their activity. It is there that their material supplies and machinery are purchased and the finished products are sold. There the larger brains of the enterprise are located. Boston itself does considerable manufacturing, but it directs many times more in the busy region between the sea and the Canadian border. It is an old, thoroughly established, perfectly organized business community. Its actual growth in population in the last two decades has been far greater than that of many an ambitious western "boom" town. And yet, for reasons which Bostonians understand but which it is very difficult to make known to strangers, this city never receives its just rating among the great cities of the United States. It has never caught the modern craze for the wholesale annexation of contiguous territory. It has not followed the example of Chicago or New York, and laid its corporate grasp on all Eastern Massachusetts. The Federal census of 1900 gives Boston 560,892 people, and allows that it is the fifth city in the United States. There are, however, 850,000 persons living in the crowded "metropolitan district" around the gilded dome of the State House on Beacon Hill. This is the real Boston, the greater Boston, for all of the clustering suburban cities and towns are maintained by the mighty throbbing life of the tideswept peninsula on which the "city proper" stands.

Boston has no rival in New England. The next New England city, Providence, has only about one-third of her population, and Worcester, the second Massachusetts city, only one-fourth or one-fifth. Boston is the political capital, the money capital, the mercantile capital, the manufacturing capital, and last but not least, the intellectual capital, not only of Massachusetts, but of all the five northerly New England States.





NEW COURT HOUSE, BOSTON.

Boston is the second seaport in the Union, the greatest shoe and leather market and the greatest wool market. In proportion to its population Boston is the most active city commercially on this continent. It conducts about one-tenth of the overseas traffic of the United States, and its coastwise trade with other American ports near and far is enormous.

### **A Constant Growth.**

Moreover, Boston's pre-eminence is swiftly strengthening. The imports and domestic exports of Boston during 1900 were the greatest in the history of the city, amounting to \$192,608,536. In the same year Philadelphia's commerce was \$130,518,940, Baltimore's \$131,150,644, New Orleans' \$163,126,806, and San Francisco's \$77,343,269. Thus Boston leads all of her sister cities, save the giant metropolis, by a very broad and handsome margin.

The exports of Boston in 1900 were valued at \$123,867,754. Provisions, including animals, represented \$52,655,983 of these shipments of American merchandise to foreign markets; breadstuffs, \$25,000,618; cotton and manufactures, \$16,683,771; leather and manufactures, \$10,603,544; iron and steel and manufactures, \$5,327,384.

The imports of Boston in 1900 were valued at \$68,740,782, of which \$11,278,258 represented wool and manufactures of wool, \$8,658,008 represented fibres, \$8,006,225 sugar, \$6,913,819 hides and skins, \$5,266,-

021 cotton and manufactures, \$3,576,999 chemicals, \$4,263,249 iron and steel manufactures, and \$3,230,427 leather and manufactures.

Because winter closes the St. Lawrence, and Boston's railway facilities are so admirable, our city handles a considerable portion of the trade of the Dominion of Canada. This is not included in the figures which have been given. In 1900 there were entered at Boston for transshipment to foreign countries, chiefly Canada, imports valued at \$5,827,788, and there were received from Canada and exported via Boston goods to the value of \$4,398,311. With these additions the total foreign trade of the port of Boston during 1900 rose to a value of \$202,834,635—this not including \$2,091,403 of goods received at Boston and forwarded to the interior without appraisement.

### **Significant figures.**

Boston in 1900 had 365 steamship sailings, one a day, for European ports, 151 of these for Liverpool. In all, 1667 ships entered from foreign ports of a total tonnage of 2,265,031, and 1618 ships cleared for foreign ports of a total tonnage of 1,977,410. Boston has four first-class lines of steamships to Liverpool, three of them carrying cabin and steerage passengers; two first-class lines to London, a line to Glasgow, a line to Bristol, a line to Copenhagen, a line to Hamburg, a line to Holland and a winter line to the Mediterranean. Fruit steamers ply regularly from Spanish and



Italian ports, and steamships do much of Boston's carrying from the West Indies and the East Indies. All of these steamship enterprises in the foreign trade are conducted under foreign flags, however, save one, the new "Admiral" line of the United Fruit Company from Boston to Jamaica, which has been established under the provisions of the Postal Aid Law of 1891, receiving a subsidy for carrying the United States mails.

Of late years the cabin passenger traffic out of Boston to Europe has reached large proportions. Ten years ago only six or seven thousand travelers left and entered Boston for and from these overseas countries. But the introduction of new, larger and faster steamers by the Cunard, Dominion and Levland lines has showed New England people that they need not go to New York to secure first-class cabin passage for Europe. In 1898 the cabin passengers arriving at and leaving this port in the transatlantic trade numbered 10,202, in 1899 13,934, and in 1900 15,328.

### **Big Coastwise Trade.**

But, after all, by far the greater part of Boston's seaborne commerce is with our own ports of the United States. This coastwise commerce is conducted as a rule in smaller vessels, but there are many more of them. There were in 1900 10,436 arrivals, in Boston from American ports, these vessels having an aggregate estimated tonnage of 8,244,860. The outward voyages would give Boston a total tonnage of 16,489,720 in the coastwise trade; of nearly four times the total tonnage of arrivals and clearances—4,242,441—in our foreign commerce.

These statistics on their face make Boston's a pre-eminent position in domestic ocean trade, New York's domestic tonnage in 1900 being estimated at 14,245,280, Philadelphia at 7,249,040, Baltimore's at 4,879,040 and New Orleans' at 1,258,050.

Boston has admirable coastwise steam lines carrying as a rule both passengers and freight, not only to the nearby New England ports of Portland, Bath and Bangor, and to the maritime Canadian cities of St. John, Yarmouth and Halifax, but to New York, Philadelphia, Norfolk, Baltimore, Charleston, Brunswick, Savannah and Jacksonville.

American steamers also bring cotton in large quantities from Galveston. The coal trade from Philadelphia, Baltimore, Newport News and Norfolk to Boston employs a great fleet of steamships, ocean tugboats, towing barges and capacious three, four, five and six masted schooners. Boston receives vast quantities of both anthracite and bituminous coal, not only for its own needs, but for the other manufacturing cities and towns of northern New England. There is a large import trade in sugar from the West

and East Indies and an import trade in sugar, hides and wool from South America. These vessels go back to the Southern ports laden with lumber, cooperage, fish, provisions of many kinds, and all sorts of manufactures. But Boston lacks a regular steamship line to Central and South America, though this need is destined soon to be supplied.

### **Important fishing Port.**

As a fishing port, it is true, though it is not generally known, that Boston is second only to Gloucester. There were received at Boston during 1900, 17,717,650 pounds of fresh and 131,000 pounds of salted codfish, 916,800 pounds of cusk, 28,235,850 pounds of haddock, 6,917,100 pounds of hake, 1,173,500 pounds of pollock, 1,588,150 pounds of halibut fresh and 180,000 pounds salted, 4,019,362 pounds of mackerel fresh and 1,404,300 salted, and enough other fish, fresh and salt, to bring the grand total of Boston's fishery receipts up to 66,820,912 pounds, valued at \$1,598,506. As a fresh fish market Boston is ahead of Gloucester, receiving 63,647,812 pounds in 1900 as compared with 43,535,583 pounds brought into the famous Cape Ann port.

The products of the far West make up the greater part of Boston's shipments of merchandise to foreign countries. Of the 99,000,000 bushels of wheat exported in 1900 from all the United States, 11,925,415 bushels went out of Boston. Of flour the receipts of Boston were 2,594,854 barrels, and the exports abroad were 1,606,016.

Though Boston's chief interest is in manufacturing elsewhere in New England or in commerce overseas or up and down the coast, the city has a great amount of varied manufactures of its own. There are 5543 manufacturing establishments in Boston, according to the State census of 1895, with a total capital of \$77,064,107 and an annual product of \$165,774,080. These manufacturing establishments employ 57,108 hands, and disburse in wages annually \$30,925,835. Food preparations are the greatest single industry in the value of the product—\$32,072,204. Then comes clothing, with \$23,178,388; building with \$20,211,121; printing, publishing and bookbinding, \$15,516,278; liquors, malt, distilled and fermented, \$10,186,255; machines and machinery, \$7,613,771; metals and metallic goods, \$6,429,654; furniture, \$4,405,187.

### **Ships Owned at Home.**

Although nine-tenths of its commerce is carried in foreign ships, Boston is one of the great ship-owning ports in the country. Most of its vessels are engaged in coastwise trade, but there is a considerable fleet of Boston sailing craft in overseas voyaging. Out of the 640 merchant vessels owned in Massachusetts, according to the last State census—with a valuation of \$12,220,132—Boston owns 290 vessels, including 42



steamers, 9 ships, 21 barques, 12 brigs and 145 schooners. The greater part of these vessels, as has been said, are employed in domestic coastwise traffic, but some of them run to British America, the West Indies, Mexico, South America, Africa, Asia and the Pacific islands. Boston's ships earn about \$6,000,000 a year, approximately five-sixths of this being from freight and one-sixth from passengers.

The chief items of export from Boston in 1899 were cattle, valued at \$9,314,421—the largest valuation shipped from any American port—corn valued at \$6,071,879; oats valued at \$1,905,373; wheat valued at \$10,575,517; wheat flour, \$7,648,623; raw cotton, \$12,428,557; manufactures of cotton, \$1,013,329; metal workings \$451,714; shoe machinery, \$694,224; electrical machinery, \$256,492; pumps and pumping machinery, \$217,467, and miscellaneous machinery, \$534,066; leather, \$9,734,052; manufactures of leather, \$368,713; printing paper, \$504,994; fresh beef, \$10,723,447; bacon and hams, \$22,922,065; pork, \$4,551,425; lard, \$8,145,166; unmanufactured tobacco, \$574,037; lumber, \$905,770; furniture, \$475,834; other manufactures of wood, \$765,764.

These figures illustrate the wide range of Boston's foreign trade. New England manufacturing is well represented, but the bulk of Boston's exports is composed, after all, of the products of the grain fields and the cattle ranges of the West and of the cotton fields of the far South. These products are brought to the New England port by a noble system of railroad lines supplemented by the coastwise steamers. Boston has direct connection with the West by the Boston & Albany road, now a part of the great New York Central service, and by the Boston & Maine, which includes the Fitchburg Railroad, or the Hoosic Tunnel route. The Boston & Maine enjoys close relations with the Grand Trunk Railway of Canada. These wide-spreading railway lines to the north and west of Boston are rounded out to the southward by the New York, New Haven & Hartford, which gives Boston access to Rhode Island and Connecticut and provides a short line to New York City. Boston's railway system is therefore, in the hands of three progressive and powerful corporations, which equitably divide the field, and yet are competitors with each other for certain kinds of business.

### **Benefits of Consolidation.**

This consolidation of the many old and weaker lines

into the three great companies has proved altogether advantageous. Boston's domestic and foreign trade has prospered in the past year or two as never before. The present urgent need is for enlarged terminal facilities and a deeper and broader ship channel for the harbor. Steamers 600 feet long, drawing 30 feet of water, now enter and leave Boston regularly all the year round. The natural channel that served the demands of commerce very handsomely for many years is inadequate for these steel monsters. A new alternative channel via Broad Sound is now being dredged to a depth of 30 feet, and the next step is to create a new channel 35 feet deep and from 1,200 to 1,500 feet wide, from the Charlestown and Chelsea Bridge to the sea. An appropriation of \$3,600,000 for this important work is confidently expected from the present Congress.

There is every prospect, therefore, that Boston in the twentieth century will hold its own as the second commercial city of America. One new and especially gratifying development is a revival of Boston interest in ship-building and ship-owning. There has lately been established on the Weymouth Fore River, an arm of Boston Harbor, a great steel shipyard abundantly equipped with the newest and best machinery for the construction of the heaviest battleship or the largest merchantman. There two of the most formidable armorclads of the United States navy are now building, together with a steel seven-masted schooner that is understood to be the largest sailing vessel in existence. Moreover, the Boston Steamship Company, a newly formed organization of Boston capitalists, has just launched in Maryland the first of two immense cargo steamships for the foreign trade. These two vessels will be the nucleus of a large Boston fleet of mercantile steamers if favorable legislation is procured from Congress.

Every important Boston trade and industry is facing the future with buoyant expectations. Those who count Boston "slow" do not know the New England capital. Her merchants waste no breath in bragging. They are not much given to the chasing of speculative rainbows. But they have the courage of high intelligence, the enterprise that is born of clear-headed thinking and a perseverance fitly matching that of their bold forefathers, whose keels furrowed every sea and brought tribute from every market in the world.





BOSTON'S CITY HALL.

*Though this is a comparatively modern building (completed in 1865) and planned on a liberal scale for those times, it was early outgrown, and many of the city departments find accommodation in other buildings. Its exterior is white Concord granite, and the style the Italian Renaissance, with modifications suggested in modern French work.*



# In the field of the financial Interests, Boston Commands the Respect of the Country, and the World.

GOOD BUSINESS JUDGMENT THOROUGHLY INTERWOVEN IN HER UNDERTAKINGS—A PROUD RECORD OF INFLUENCE—A CITY OF ORGANIZERS, DEVELOPERS AND DIRECTORS—CAPITAL AND HIGH CREDIT FOR ENTERPRISES.



**I**F one were to emphasize the old adage, "Knowledge is Power," so that it would read "Money is Power," Boston, which has always possessed an abundance of both, could certainly lay claim to a power almost beyond measurement.

A great financier, who, in his day, took a most important part in the development of the Western portion of the country, made the somewhat suggestive and significant remark upon a certain occasion that there was hardly an acre of land beyond the Mississippi River, hardly a mining proposition of any importance or a railroad line that had reached any degree of successful development that did not bear the impress of Boston money either directly or indirectly. No truer utterance was ever made. It is indeed a fact that Boston capital has done more for the substantial upbuilding of the United States along industrial, railroad, agricultural and mining lines than any other municipality within its confines.

Boston may be, as it is claimed, second in rank today as a financial centre. It may be true, also, that many of the so-called progressive Western communities look upon Boston—the "Athens of America," and theoretically, at least, "the Hub of the Universe"—as having had "its day." It may be equally true that some of the characteristics attaching to Boston people may so savor of conservatism as to be seemingly slow to the more aggressive and more venturesome methods of the relatively new Western country. But it is to be remembered, none the less, that the influence of Boston conservatism, the influence of the strong and protective corporation laws of Massachusetts, and

the influence of the policy of integrity and good business judgment that belongs to this entire section, is still so thoroughly interwoven in the enterprises that have been built up by Boston capital that these things all still command the highest degree of respect from those who are seeking the benefits to come from a clean and sound policy of action. It may also be well added that, even at this late day, when many Boston capitalists have laid aside the burdens attaching to the responsibility of organizing, developing and directing, these same people who are accustomed to belittle the power of Boston and its far-reaching influence, come to these very men whenever they are looking for capital and high credit for their enterprises.

## A Proud Record of Influence.

Boston's financial history, both as regards its banking institutions and its speculative interests, makes a record of which any municipality may well be proud. The Nickersons, the Thayers, the Peabodys, Forbes, Hunnewells, Coolidges, and others of like standing, who in the early days of Boston's financial development, by industry, integrity and earnest effort, coupled with a wise and sagacious business judgment, planned and executed, when seemingly insurmountable obstacles obstructed in every direction, so that the results which followed were of a substantial and lasting character, not only built fortunes for themselves, but they established, as well, investments which have since added materially to Boston's wealth, and at the same time have done very much in winning for Boston its exceedingly high reputation as a centre of financial power and influence.



Boston is, it is true, conservative. This is an element entering into the Bostonian's character that has been most potent in influencing action and in accomplishing splendid results. It is this same conservatism, accompanied by an indomitable energy, that has established for the metropolis of New England a financial standing which is unsurpassed by any country on the face of the earth. And why, therefore, should Boston people not be proud of a record of this sort? Wherever the Boston capitalist has directed his attention and bent his efforts, success has almost invariably been achieved.

## The Banks.

STRONG, RICH AND CONSERVATIVELY  
MANAGED.

In no direction perhaps does the influence of large capitalists centered in and around Boston make itself more manifest than in the great national banks of the city. Indeed, the bank history of Boston is more than ordinarily interesting. It is a history that covers a period of nearly 125 years. In the present Massachusetts National Bank is to be found the beginning of Boston's national bank operations. This bank was the second organized in the United States under its independent form of government. It was early in 1782 that the famous Bank of North America in Philadelphia, which had been started by Congress the year before, commenced business, and only two years later the Massachusetts, organized on the same lines with a capital of only \$253,000, started in to establish a business which has since grown to enormous proportions. In the early days of banking it was no easy matter to establish a bank credit among the people. Various methods were adopted which, in our time, would be amusing to say the least. Continental money experience was still fresh in the minds of the people. When these new banks adopted a specie basis to convert bills into coin great difficulty was encountered in giving credit to their notes. The people somehow could not be made to believe that the bank had coin or could redeem its bills on time. The bank, therefore, frequently employed persons to go about town to get silver in exchange for its notes. It made a great public display of its specie during banking hours, kept men raising and lowering boxes supposed to contain coin from bank room to cellar, and vice versa, and it called into service other like expedients.

The Massachusetts Bank, besides being the second established in the United States, was the first in New England, and, as already noted, is still in an excellent condition. The Union Bank was the second in Massachusetts, being started in 1792. Its inauguration was attended with much opposition by the old Massachusetts Bank people and their friends, on the ground

that a second bank was not needed. This bank passed its centennial anniversary some ten years ago.

If our forefathers had looked forward to the time when Boston should possess 61 banks with an enormous capital, with business done by the millions every day, they would simply have marveled at the progress of the times. And yet out of these small beginnings came in the course of years, as commerce and business increased and as banking demands expanded, a development that far surpassed the dreams of the most sanguine of a century ago.

Not until 1898, when the rapid expansion had gone forward steadily for so many years, was any halt called.

Then it was that a syndicate of bankers, recognizing the fact that the city's banking business had outgrown the requirements of the commercial demands, proceeded to liquidate nine of the smaller institutions. The process of liquidation has gone on ever since at intervals—and quite rapidly during the past few months—until banking capital now invested has been reduced from over \$50,000,000 to \$33,250,000. And this, too, has come about within three years, and without causing the least disturbance to the financial interests of the city and those allied to it. The banks doing business in Boston when the last Comptroller's call was made, show an aggregate surplus, according to those last returns, of \$13,789,400 and undivided profits of \$6,731,148.91. This same showing summarized gives the list of banks and their standing, as of Dec. 10, 1901, as below:

Bank.	Capital.	Surplus.	Undivided Profits.
American ..	\$200,000	.....	\$1,289 91
Atlantic ...	750,000	\$300,000	35,178 27
Atlas .....	1,500,000	400,000	170,729 21
Boylston ..	700,000	200,000	58,759 89
Bunker Hill	500,000	350,000	90,146 52
Central ...	500,000	100,000	122,475 00
Colonial ...	1,000,000	500,000	71,311 19
Commerce .	1,500,000	300,000	499,422 93
Commercial	250,000	100,000	15,729 14
Eliot .....	1,000,000	500,000	295,319 66
Exchange ...	1,000,000	400,000	207,238 36
Faneuil Hall.	1,000,000	300,000	203,266 27
First Nat'l .	1,000,000	900,000	97,853 00
First Ward.	200,000	100,000	47,143 86
Fourth Nat'l	750,000	150,000	143,057 64
Freemans ..	500,000	130,000	36,758 45
Hamilton ..	500,000	13,400	33,427 57
*Hide & Le'r	1,000,000	300,000	111,309 31
Market ....	250,000	50,000	65,163 98
Massachu'ts	800,000	75,000	34,857 07
Mechanics' .	250,000	100,000	27,286 71
Merchants' .	3,000,000	1,500,000	892,692 98
Metropolit'n.	500,000	100,000	63,398 24
Monument .	150,000	150,000	14,616 23
Mt. Vernon.	200,000	40,000	7,003 24
New Engl'd.	1,000,000	600,000	131,802 72
Old Boston.	900,000	200,000	23,703 69
People's . .	300,000	120,000	18,733 27
Redemption	2,000,000	400,000	244,182 40



Republic ..	1,500,000	750,000	483,749 74
Rockland ..	300,000	150,000	77,483 07
Second Nat'l	1,600,000	1,000,000	303,186 20
Security ...	250,000	200,000	444,117 37
†Shawmut ..	3,000,000	1,500,000	675,306 62
South End..	200,000	11,000	1,088 00
*State .....	2,000,000	400,000	300,482 38
‡Suffolk ...	1,000,000	300,000	157,016 44
Union .....	1,000,000	400,000	381,373 59
‡Washington	750,000	250,000	138,871 22
Webster ...	1,000,000	250,000	138,558 00
Winthrop ..	300,000	200,000	165,056 55
Totals ..	\$36,100,000	\$13,789,400	\$6,731,148 98

The present invested banking capital in the 31 banks out of the existing 39 included in the Clearing House Association, is \$33,250,000.

Only seven of the Boston banks are outside of its Clearing House Association.

The absorption of banks and the bank consolidation movement that has in recent years been under way, and that has placed the Shawmut National pre-eminently at the head of Boston's banks, has been accomplished judiciously and in a generally satisfactory manner. In their alphabetical order, and with the respective dates of their incorporation, the national banks of Boston that have gone out of business since 1898 for various reasons are as follows:

Blackstone, 1851; Broadway, 1853; Boston, 1853; Columbian, 1822; Commonwealth, 1871; Continental, 1860; Eagle—the original bank—1822; Everett, 1865; Globe, 1824; Hamilton, 1832; Hide and Leather, 1857; Howard, 1858; Lincoln, 1881; Manufacturers', 1873; Market, 1832; North, 1825; North America, 1850; Revere, 1859; State, 1811; Washington, 1825; Shawmut, 1836—the original bank; Shoe and Leather, 1836; Suffolk, 1818; Tremont, 1841; and Third, 1863. The new banks that have come into existence during this same period are the American, Colonial, Hamilton, Shawmut and the new Suffolk.

The above record of capitalization, surplus and undivided profits ranks second only with the high record figures of all other cities in the country, New York alone surpassing us as a banking center. The liquidation and absorption movement is still in progress to a certain degree, and there are still plenty of bank people in Boston who believe that before it has been worked out to its full, the number of banks will be reduced to 25, and possibly to 20.

In this connection it may be noted that the business of a community of large proportions is usually well measured by the size of its bank clearances, and

\*The Hide and Leather Bank has been absorbed by the State National, which has taken the Commonwealth Bank's old quarters.

†The capital of the Shawmut Bank has recently been increased to \$3,500,000, its surplus to about \$2,000,000, and its undivided profits to about \$725,000.

‡Liquidated and its business turned over to the new National Suffolk Bank with a capital of \$1,500,000.

they represent not only the mercantile and commercial capacity, but the investment and speculative business as well. Last year's record of the Boston Clearing House was by all odds the best in its history, a history that covers a period of over 75 years' active operations. The aggregate clearances for the year 1901 aggregated \$7,191,685,071, as against \$6,180,308,447 for 1900, a gain for the year of \$1,011,376,624. For this same period the balances aggregated \$610,980,351, as against \$558,895,022 for the previous year, an increase of \$61,085,329. These figures show a volume of business more than double—indeed, nearly three times—the amount that was transacted a dozen years ago, and clearly count as a barometer of the course of general business in Boston trade and financial circles.

An important feature of Boston and New England's financial interests is its savings institutions, of which there are 18 in the city itself and 186 within the State. Nothing more clearly marks the frugality, prosperity and wisdom of the people than a good showing by its savings banks, and it is doubtful if a better one is to be found in any portion of the country than that shown by these institutions here in Boston. According to the official statistics at hand, money deposited in these banks has drawn an average rate of interest for the past fiscal year of 3.75 per cent., or a trifle less than that paid in 1900. Through these savings banks there is a very large class of people in Boston, as is true of every community, who are offered exceptionally good opportunities for the secure deposit of surplus money which can be easily obtained when desired, and which, at the same time, return, as investments now go, a fairly profitable income. The list of Boston savings banks, together with their deposits, as of Oct. 31, 1901, is as follows:

Name of Bank.	Deposits. Oct. 31, 1901.
Boston Five Cents Savings Bank.....	\$27,575,919 37
Boston Penny Savings Bank.....	2,778,207 98
Brighton Five Cents Savings Bank..	1,173,451 18
Charlestown Five Cents Savings Bank	6,561,527 60
Dorchester Savings Bank.....	208,177 46
East Boston Savings Bank.....	3,587,320 34
Eliot Five Cents Savings Bank.....	4,775,211 12
Franklin Savings Bank .....	10,807,955 21
Home Savings Bank.....	8,265,647 44
Institution for Savings in Roxbury....	8,056,783 16
North End Savings Bank.....	3,485,661 67
Provident Institution for Savings.....	39,662,531 73
South Boston Savings Bank.....	4,571,462 32
Suffolk Savings Bank for Seamen and Others .....	31,721,853 41
Sumner Savings Bank .....	234,313 88
Union Institution for Savings.....	6,667,467 27
Warren Institution for Savings.....	9,793,050 95
Willey Savings Bank .....	2,882,466 22
Total .....	\$172,809,008 31



This is an increase of \$6,007,452.90 for a single year, and of \$50,514,220.08 within a period of eight years. In this connection it may be interesting to note the fact that the 186 savings banks within the limits of the State of Massachusetts held on October 31, 1901, assets aggregating \$596,094,801, as against

CENTRAL NATIONAL BANK.—For nearly forty years the Central National Bank of Boston has held a prominent position among the banking institutions of New England, and particularly of this city. Located as it is at 141 Devonshire street, it is situated in the heart of the business district, and it is



THE GOVERNMENT BUILDING.

*Facing Post Office Square, the structure fills the space bounded by Milk, Devonshire and Water streets, an area of about 45,000 feet. Its material is Cape Ann granite, so substantial that it successfully resisted the flames in the great fire of 1872. The building is crowned by several sculptured groups in Vermont marble, the work of the chisel of Daniel C. French. The building accommodates, besides the Post-office, the other branches of the United States Government's work in Boston, such as the Federal Courts, the Weather Bureau, offices of the Light-house Board, and the Internal Revenue Department.*

\$574,237,239 a year ago. Chief among the assets are the holdings of national bank stocks, many of which at present command high premiums and return satisfactory incomes, but which at present are in some cases being sold out in response to higher market prices for the same. They are exceeded in amount only by the public funds. It is peculiarly noteworthy also that the savings banks laws of Massachusetts, carefully guarded by a Savings Bank Commission, make these institutions exceptionally safe for deposits of money by people of small means.

a favorite bank with many of the larger business firms of the City of Boston as the place of deposit for their daily balances and for the transaction of the many details of ordinary mercantile life with which a banking house is so intimately associated. The Central National Bank was established in 1873. Its capital is \$500,000, and the deposits at its last report aggregated more than \$4,000,000. The yearly rate of increase is a most gratifying one. Its board of executive officers is made up of Otis H. Luke, President; J. Adams Brown, Cashier; and



James H. Crocker, Assistant Cashier, all men of recognized ability and integrity, and to its methods and its management may be truthfully applied the words—"Prompt, Careful, Progressive." Its banking rooms are well fitted for the transaction of a modern banking business, with burglar and fire-proof vaults, private rooms for clients, and every modern convenience. At the present time there are sixteen employees, but the increase in the business of the bank will doubtless lead to an increase in the office force at no distant date.

**THE ELIOT NATIONAL BANK OF BOSTON.**—A business man's bank, directed by men who have for years held positions of prominence in Boston's commercial and mercantile life, and always one of their favorite financial institutions, is the Eliot National Bank of Boston. Its offices are in the John Hancock Building, 178 Devonshire street and 35 Federal street.

The Eliot National Bank of Boston was established in 1853. It is capitalized at \$1,000,000, and has a surplus fund of \$500,000. Its character as a business man's bank shows plainly in its directorate. Joseph H. White, its President, is a retired dry-goods merchant; Henry C. Morse is Treasurer of the Revere Rubber Co.; David N. Skillings is one of the principal owners of the Skillings, Whitney and Barnes Lumber Co. and Treasurer of the Winchester Savings Bank; James H. Proctor is Vice-President of the U. S. Leather Co.; Frederic C. McDuffie, of the Everett Mills and of the York Manufacturing Co.; Wm. R. Dupee, beside his connection with Nichols, Dupee & Co., wool merchants, is President of the American Rubber Co.; Royal P. Barry is of the firm of Barry, Thayer & Co., cotton commission merchants; Leverett S. Tuckerman is a lawyer; Henry B. Sprague is President of the Sprague & Breed Coal Co. of Lynn, Mass., and of the Central National Bank of the same city; Arthur F. Luke is a member of the banking firm of Darr, Luke & Moore. The Vice-President of the Eliot Bank is Harry L. Burrage and the Second Vice-President is Francis Harrington.

**MASSACHUSETTS NATIONAL BANK.**—The oldest bank in New England, and the third oldest in the country, is the Massachusetts National Bank, located at 53 State street, Boston, in the Exchange Building. It was organized March 18, 1784—almost as soon as the Revolutionary War had ended—and began business in what was then known as the Manufactory House, on Longacre street, the 5th of the following July, which makes it close to 118 years old. It was chartered as a national bank May 1, 1865, just at the triumphant close of another great national struggle.

The simple statement of so remarkable a record

coincident at its most important points with the nation's crises, tells more forcibly than they could otherwise be described the sturdiness and distinction of this fine old institution, which has been an important factor in the business life of New England ever since Boston has been an American city. The discretion and integrity which are the necessary foundation of such success are self-evident, and the traditions which they have established are carefully preserved in the selection of the bank's officials, who are, at present, President John W. Weeks, Vice-President Daniel G. Wing, Cashier Frederic H. Curtin and Assistant Cashier Edward S. Haywood.

The Massachusetts National Bank is capitalized for \$800,000.

**MERCHANTS' NATIONAL BANK.**—Among the national banks of Boston the Merchants' has always held a conspicuous place. It has had a career of more than half a century as a state and national bank, during which time it has stood as the representative bank of the City of Boston. The Merchants' National Bank was established as a state bank in July, 1831, with a capital of \$500,000, which in a few years was increased to \$3,000,000. This increase was necessary to meet the requirements of the bank's rapidly increasing business.

Its bank building, one of the finest in the city, is one of the most conspicuous structures on State street, occupying as it does the site that the Custom House occupied in the old colonial days, and it is opposite the spot where the first revolutionary blood was shed. Its banking rooms are a model of dignity and elegance and will well repay a visit. The lofty dome some 60 feet in height, for light and ventilation, is one of the attractive features. The bank's large capital and unsurpassed facilities enable it to care for the largest business interests; but it extends to all depositors, small as well as large, a cordial welcome. The directors of the bank are: T. Jefferson Coolidge, Franklin Haven, George A. Gardner, Howard Stockton, Nathaniel Thayer, Francis B. Higginson and Charles W. Amory.

**NATIONAL SHAWMUT BANK.**—A tower of strength in New England finances, and one of the great banking institutions of the United States, is the National Shawmut Bank of Boston. It is a depository of the United States, of the Commonwealth of Massachusetts, and of the City of Boston, and the funds entrusted to its care by them and by great corporations and individual private depositors amounted in total, according to its statement issued in January, 1902, to \$53,149,682.75.

The National Shawmut is a great combination of several national banks which were, individually,



large and flourishing institutions before their consolidation. Bringing them all together into one corporate body has created a composite of almost unlimited resources, guided by the master brains of finance, making possible the vast mercantile and commercial undertakings to which a strong foundation is a necessity, and holding trusts of great importance and responsibility. And all of this has been accomplished not only without the slightest jar or loss to the business of the city and state, which was intimately affected, but, as well, in such a manner as made for increased confidence and prosperity, even.

The present capital of the National Shawmut Bank—the nucleus of which was originally known as the Shawmut National—is three and a half million dollars. In January it showed \$2,691,858 of surplus and profits with \$1,639,147 in circulation and over fifty-three millions on deposit in its care. Its resources included nearly seven millions in United States and other bonds, besides a few dollars less than twenty millions in time loans, ten and a half millions in demand loans and almost sixteen and a quarter millions due from banks. These figures give some idea of the tremendous business which this institution carries on day in and day out. It is, moreover, not only a bank for depositors such as have been described; it is a bank for lesser banks. It makes a feature of transactions with other financial institutions, being in a position to offer every business facility which is not inconsistent with safe and conservative banking. Its banking house at the corner of Water and Congress streets is at the very centre of the vast money interests of what the government census shows to be the territory with the greatest per capita wealth of any like section of the country.

It is but natural that such a remarkable institution as the National Shawmut Bank should have a distinguished directorate and should be officered by men of the highest degree of skill and of the highest reputation. Practically all of the most important commercial interests on which New England's prosperity is built, the law, and the best kind of business and financial success are represented on its board, which consists of: Oliver Ames, Micajah P. Clough, George M. Coburn, Edmund D. Codman, Eben S. Draper, Henry B. Endicott, E. Hayward Ferry, Francis I. Foster, William A. Gaston, Daniel B. Hallett, Edward B. Hayden, Henry L. Higginson, Henry S. Howe, Frederiek S. Moseley, Horatio Newhall, Joseph B. Russell, Francis B. Sears, William S. Spaulding, James P. Stearns, William A. Tower, Frank G. Webster, Jeremiah Williams, Moses Williams, Robert Winsor, Alfred S. Woodworth.

THE NATIONAL BANK OF REDEMPTION,  
BOSTON, MASS.

CAPITAL, \$2,000,000.

SURPLUS AND PROFITS, \$650,000.

DEPOSITS, \$22,000,000.

ACCOUNTS OF BANKS, BANKERS AND  
CORPORATIONS SOLICITED.

JOHN E. TOULMIN, PRESIDENT.

EDWARD A. PRESBREY, VICE-PRESIDENT.

GEORGE G. MCCAUSLAND, CASHIER.

PALMER E. PRESBREY, ASST. CASHIER.

SAMUEL N. ALDRICH, PRESIDENT.

ALFRED L. RIPLEY, VICE-PRESIDENT.

GEO. B. WARREN, CASHIER.

INCORPORATED 1811.  
ORGANIZED AS NATIONAL 1865.

THE STATE NATIONAL BANK OF BOSTON,  
CORNER DEVONSHIRE AND WATER STREETS,  
BOSTON, MASS.

DEPOSITORS AND CORRESPONDENTS HAVE THE SECURITY  
OF A LARGE CAPITAL AND A CONSERVATIVE MANAGEMENT.

\$2,000,000 CAPITAL.

\$1,000,000 SURPLUS AND PROFITS.

ACCOUNTS SOLICITED.



The officers of the National Shawmut are: James P. Stearns, President; E. Hayward Ferry, Francis B. Sears and Abram T. Collier, Vice-Presidents; Frank H. Barbour, Cashier; Wallace S. Draper, Henry F. Smith and Arthur P. Stone, Assistant Cashiers.

This is the condensed table report of the condition of the National Shawmut Bank of Boston, at Boston, in the State of Massachusetts, at the close of business, January 15, 1902.

RESOURCES.	
Time loan . . . . .	\$19,962,283.18
United States and other bonds . . . .	6,807,605.24
Demand loan . . . . .	\$10,545,033.89
Due from banks . . . . .	16,198,854.61
Five per cent. fund . . . . .	83,975.00
Cash . . . . .	7,382,936.84
	<hr/>
	\$60,980,688.76
LIABILITIES.	
Capital stock . . . . .	\$ 3,500,000.00
Surplus and profits . . . . .	2,691,858.51
Circulation. . . . .	1,639,147.50
Deposits. . . . .	53,149,682.75
	<hr/>
	\$60,980,688.76

Depository of the United States Commonwealth of Massachusetts, City of Boston.

We invite correspondence from Banking Institutions, and are in a position to offer every business facility not inconsistent with safe and conservative banking.

## Loan & Trust Companies.

THEY HAVE AN IMPORTANT PART IN MODERN FINANCIAL OPERATIONS.

Closely allied to the banking interests in Boston, and entering largely into its work, are the numerous loan and trust companies. These corporations are the product of a comparatively recent period, and, in so far as they are given a broader scope in the handling of money and in the care of trusts, they are fulfilling a want not provided for under the national bank laws. The development of the loan and trust business, and incidentally of the safe deposit provisions, in Boston, has been remarkably rapid, and to-day, in the aggregate, it stands close to the head among the financial centres of the United States. Nowhere, perhaps, more than in Boston and New York, is the loan and trust business so profitable. And this is so because of the enormous amount of money seeking investment, as well, also, because of the many securities of a high-class character that are available for these funds. The loan and trust companies have gained a remarkable popularity, as is evidenced by the fact that they have doubled in number during the past decade. At the present time there are 18 of them in active operation, with one more—the City—recently started, and still another—the Tremont—seeking a charter. The man-

agement of these institutions comprise in many cases leading financiers and the men who have in the past been largely instrumental in floating many successful propositions in railroad and industrial fields. The period of reorganization and financial readjustment that came to many of the large Western corporations a few years ago was in a large measure responsible for the organization and development of these corporations. They are peculiarly valuable in financing corporations and in the flotation of large issues of new securities, and in the accomplishment of this work they have proved valuable beyond expectation to the organizers and shareholders. Boston's list of these corporations, together with their capitalization is as follows:

American Loan and Trust Company . . . . .	\$1,900,000
*Bay State Trust Co. . . . .	500,000
Beacon Trust Co. . . . .	300,000
Boston Safe Deposit & Trust Co. . . . .	1,000,000
City . . . . .	1,000,000
Columbia Trust Co. . . . .	100,000
Federal Trust Co. . . . .	500,000
International Trust Co. . . . .	1,000,000
†Massachusetts Loan and Trust Co. . . . .	1,000,000
Mattapan Trust Co. . . . .	100,000
Mercantile Trust Co. . . . .	1,000,000
New England Trust Co. . . . .	1,000,000
Old Colony Trust Co. . . . .	1,000,000
Provident . . . . .	200,000
Puritan Trust Co. . . . .	200,000
Security . . . . .	200,000
State Street Trust Co. . . . .	600,000
Union Loan and Trust Co. . . . .	100,000
United States Trust Co. . . . .	200,000
	<hr/>
Total . . . . .	\$10,250,000

That the loan and trust business is increasing steadily is evidenced not alone by the fact, indicated above, that two new companies are just entering the field, but by the added fact that the present established companies are in several cases going to establish important branches for the accommodation of their customers.

AMERICAN LOAN AND TRUST CO.—From the day of its opening, in 1881, the American Loan and Trust Co., which has its offices in the Exchange Building, 53 State street, Boston, has maintained a position of dignified independence which has made it one of the most influential and successful financial institutions in the city. It is capitalized for \$1,000,000 and its surplus earnings are another million. Its directorate includes some of the best known names in Boston.

Indeed, such a position as the American Loan and Trust Co. holds could be maintained only by the associations of such men as Chairman S. E. Peabody, C. F. Adams, 2d, Hobart Ames, Edwin F. Atkins, Isaac T. Burr, Samuel Carr, Gordon

\*Controlled by the Old Colony Trust Company.

†Recently sold to a local syndicate.



Dexter, Elmer P. Howe, N. W. Jordan, David P. Kimball, Francis Peabody, Jr., Albert A. Pope, N. W. Rice, R. E. Robbins, Philip L. Saltonstall and Charles W. Whittier on the Board of Directors and Messrs. Carr, Jordan, Kimball, S. E. Peabody and N. W. Rice as Executive Council. Mr. Jordan is President of the institution, E. A. Coffin, Treasurer, C. H. Bowen, Secretary and G. W. Auryansen, Assistant Secretary.

Besides its general banking business, in which it allows interest upon deposits, this company is a legal depository for executors, guardians, trustees and courts of law, and acts as financial agent in any matter. As transfer agent and registrar of stocks and bonds, which is its specialty, it enjoys a unique position.

**FEDERAL TRUST CO.**—The trust company is a comparatively modern development of business conditions, but it has made for itself a permanent position as a necessary adjunct to commercial life. Among the several trust companies of Boston, the Federal Trust Co. with business offices at 95 Milk street is recognized as conservative, safe and splendidly organized concern, with an efficient and capable board of officers and directors. It is capitalized for \$500,000. The Federal Trust Co., as such, accepts trusts created under will or otherwise, assumes the care of invested property and the collection of dividends, and acts as transfer agent and trustee for corporations. Interest is allowed on deposits subject to check, just as in a regular banking business. The offices of the company are fitted with the most modern and up-to-date equipment obtainable, since the company was organized and the business opened in May, 1899. The officers of the company are Joseph H. O'Neill, President; Josiah S. Dean, Secretary and David Bates, Treasurer. Included in the directorate of the company are such well-known Boston business men as James W. Kenney, John E. Stanton, D. M. Anthony, Wm. J. Carlin, John W. Horne, L. J. Logan, Thomas F. Galvin, Jacob Morse, John B. Fitzpatrick, Wm. J. Emerson, Joseph B. Horton, John T. Burnett and J. C. Spillane.

**OLD COLONY TRUST CO.**—Perhaps no similar institution in the United States has a more distinguished Board of Directors than the Old Colony Trust Co. of Boston, whose banking rooms are in the Ames Building. Their names, the best possible indication of the institution's character, are:

T. Jefferson Coolidge, Jr., Chairman; Gordon Abbott, Oliver Ames, C. W. Amory, Samuel Carr, B. P. Cheney, T. Jefferson Coolidge, Charles E. Cotting, Philip Dexter, Eben S. Draper, George F. Fabyan, Reginald Foster, George P. Gardner, Henry S. Howe, Walter Hunnewell, George von L. Meyer,

Laurence Minot, Richard Olney, Henry R. Reed, Nathaniel Thayer, Charles S. Tuckerman, Lucius Tuttle, Stephen M. Weld and Henry C. Weston.

It is not surprising that under such management the Old Colony Trust Co., with a capital of \$1,000,000, has, in the twenty-one years that it has been doing business, accumulated \$2,000,000 surplus and deposits amounting to more than \$27,000,000. It transacts a general banking business, giving special attention to accounts with ladies for whom special accommodations are provided. Interest is allowed on accounts subject to check. Its trust department acts as transfer agent, registrar and trustee under mortgages and as executor and administrator of estates and accepts trusts under wills or agreements. As an adjunct to this very complete banking house there are safe deposit vaults also, so that a customer may transact all his business under one roof and with the utmost convenience and security.

**SECURITY SAFE DEPOSIT CO.**—One of the necessities nowadays is a place of assured safety from fire and theft for the protection of valuables, whether in the form of silverware, jewels, securities or important documents and papers, and the vaults of the Security Safe Deposit Co. in the Equitable Building, 67 Milk street, at the corners of Federal and Devonshire streets, are among the most perfectly equipped place of the sort in the country.

The company began business in 1876 and its success was immediate. Its vaults are safe-guarded by every modern device. Built of steel and masonry they are constantly under the eyes of watchmen and are in addition fitted with the most improved electrical system, connected directly with police headquarters.

On the street floor are the most sumptuous reading room and parlor in any similar institution in the country. They are in direct communication with the Boston and New York Stock Exchanges and offer every facility for the transaction of customers' business.

The Security Safe Deposit Co., has \$200,000 of capital. Its officers and directors are: E. M. McPherson, President; William A. Tower, First Vice-President; James H. Hyde, Second Vice-President; Nathan Warren, Treasurer; Gordon Dexter, Gage E. Tarbell, Henry M. Alexander, E. Rollins Morse, Louis Fitzgerald, F. A. C. Hill, Oliver Ames, William H. McIntyre and Daniel G. Tayler.

**STATE STREET TRUST CO.**—After eleven years of successful business, during which time the corporation has placed itself in a most prominent position, the State Street Trust Co. stands to-day a representative Boston business institution. It was estab-



lished in July, 1891, to carry on a trust and banking business, and is incorporated, with a capitalization of \$600,000. Its offices at 38 State street are in the heart of the business section of Boston, and are readily accessible from any part of the city. This company has made a reputation for conservative and capable care of trusts under will or similar legal provision, and it is the transfer agent and trustee for many corporations, as well as the accredited caretaker of invested property and collector of dividends for many individuals not in a position to adequately care for their own property. The officers of this company are Moses Williams, President; Charles Lowell, Actuary; F. J. Stimson and J. B. Russell, Vice-Presidents; Allan Forbes, Treasurer; E. W. Foote and L. W. Wiggin, Assistant Treasurer; and J. H. Pitman, Assistant Secretary. Included in the directorate of the company are R. L. Agassiz, Harcourt Amory, John Jacob Astor, Edward Atkinson, August Belmont, Richard Delafield, Philip Dexter, Stuvesant Fish, W. Cameron Forbes, Gustav E. Kissel, Geo. V. Leverett, Charles Lowell, Neal Rantoul, Joseph B. Russell, Frederic J. Stimson, Howard Stockton, Albert B. Wiggin, and Moses Williams.

## Wide Influence

EXERTED BY BOSTON BANKERS AND BROKERS.

Boston capitalists have not only developed and directed the affairs of many corporations of the past, but they have as well established a broad market for the securities of the same, and made Boston, on that account, a financial centre second only in importance to the New York Exchange. Boston in its Stock Exchange and its small army of brokers possesses a force for the development of business that is as potent as it is successful. It is here in Boston that are controlled very many copper producing properties of the

Lake Superior and Montana districts, and it is Boston capital that has opened up many of these extremely profitable mines. It has been said in the past that the Boston Stock Exchange would perhaps be a dull affair but for its copper stocks. In a certain sense this may

be true, but the Stock Exchange, despite the fact that its copper shares furnish the bulk of its business, still has upon its lists a group of securities that are widely traded in, and that furnish as well, every opportunity for a broad and profitable speculation.

The Stock Exchange to-day, in its convenient and well-arranged quarters on State Street furnishes another altogether splendid monument of the progress that has been made in local financial circles during the past century. It has been a most important factor in the development of the financial interests of Boston, and it has won a reputation which places it well at the head of the stock exchanges of the world.

From a simple beginning it has grown steadily, and at times rapidly, until to-day it has a list of securities which furnishes at times extremely active trading, and a membership numbering 150 bankers and brokers of the leading and progressive men of the city. There are 96 firms represented on the board, 39 of which have membership in the New York Stock Exchange. Ten firms have two memberships in the Boston Exchange, and one firm has three memberships. Edward L. Giddings, of Tower, Giddings & Co., is dean of the board, having been admitted on March 23, 1864. The last member admitted was Herbert I. Foster, of Paine, Webber & Co., on Jan. 9, 1902. The price of membership is now \$22,000, and they have in the past sold as high as \$25,000.

The board has been in existence for nearly 68 years, having been organized in October, 1834. In those early days a few of the old-time bankers were accustomed to meet daily at the office of one of their number, and trade in the few securities of banks and



EXCHANGE BUILDING.

*Here, on the first floor of the building, are the quarters of the Stock Exchange. The Chamber is a handsome hall, 115 feet long, 50 feet wide and 35 feet high. The Stock Exchange dates from 1834.*



railroad corporations which were then upon the market. The name of P. P. Bolles and John E. Thayer are among those who were chiefly instrumental in its organization. As soon as the board had been properly started the members assessed themselves \$100 each and that amount was made the initiation fee. It was later advanced to \$200, and still later to \$1,400, and as the business increased, and the value of the membership was thereby enhanced, it was lifted to \$2,000. In recent years the price of a seat in the Boston board has, as noted above, reached \$25,000, and very recently it was sold at \$22,000.

Boston brokers have, in recent years, seemingly caught the spirit that has long dominated Wall Street and in the speculative and investment arena it has certainly taken a foremost place. Its business last year—a banner year—aggregated 10,758,462 shares of listed stocks, and 5,447,485 shares of unlisted and \$22,981,628 of bonds—truly a marvelous showing when placed in comparison with the records of its early years, when everything was done on a small scale and when the opportunities for development were greatly restricted.

Here in Boston, too, have been founded, matured and developed banking houses of a world-wide reputation, whose names are synonyms of unlimited credit, and of the highest possible business standing. These concerns have, in the past, financed many of the largest corporations that have ever been launched, and it is through them that much of Boston capital has found its way into the West, for the achievement of the great development, in all directions, that has been accomplished during the past half century.

**BRIGHT, SEARS & Co.**—Among the firms of Boston bankers and brokers with offices in the Exchange Building at 53 State street is that of Bright, Sears & Co., an enterprising house employing fourteen efficient clerks and transacting a growing business. This firm was established on July 1, 1897, for the transaction of a general banking and brokerage business, by William Ellery Bright and Harold C. Sears. The firm are members of the Boston Stock Exchange, and are thus in a position to handle the business of their clients quickly and directly. In addition to the regular telegraphic service of a modern brokers' office, Bright, Sears & Co. are in touch with the New York Stock Exchange by means of private wires to members of that exchange, and are therefore enabled to carry on transactions in Wall street without loss of time. The rooms of the firm in the Exchange Building, readily accessible as they are to patrons having business on "the Street," and are splendidly equipped with every facility for the transaction of a brokerage and banking business,

with private rooms for customers, telephone and messenger service, etc., and that this is appreciated is evidenced by the firm's constantly increasing business. Its customers are those which would naturally be attracted by methods, which while conservative, are yet progressive, safe and reliable.

**NATHAN B. GOODNOW & Co. AND SOUTH END NATIONAL BANK.**—Among Boston's banking firms the house of Nathan B. Goodnow & Co. has a recognized financial standing. The firm was established in 1873 and has a New York office. They transact a general banking business, including the purchase and sale of stocks, bonds and grain, for investment or on margin. They are also dealers in government, city, town and railroad bonds and make a specialty of Massachusetts town bonds.

Some time ago Goodnow & Co. established a permanently invested fund of \$224,000, which is held as a guaranteed security for all persons who have business with that concern. In this manner they have afforded ample protection to those who have invested with them.

Nathan B. Goodnow is Vice-President of the South End National Bank, 1119 Washington street. The bank handles the accounts of corporations, firms and individuals in a manner that has secured the highest confidence of the public. John A. Pray is President of the bank, Frank H. Robbins Cashier and John G. Blake, Thomas W. Carter, Charles A. Pooke, Randall G. Morris, John A. Pray, Nathan B. Goodnow and S. A. D. Sheppard, Directors.

The Boston office of Goodnow & Co. is at 2 Post Office Square, and the New York office at 52 Broadway.

**HAIGHT & FREESE Co.**—The firm of Haight & Freese Co., 85 State street, Boston, with branches at 105 Summer street and 15 Brattle street, is known all over the country. They are commission stock brokers, with offices in all the large cities, and have been in business for eighteen years. This house makes a specialty of fractional lots, being pioneers in that field, and the quality of its brokerage service has been long established. Their illustrated "Guide to Investors" is of great value to all who care to keep in touch with the world's markets. Their New England branches are in Worcester, Springfield, Hartford, New Haven, Bridgeport, Providence, Lowell, Lynn and Waltham.

Haight & Freese Co. was established in 1890, under the State laws of New York. The capital paid in is \$100,000. Their policy of being "up-to-date" is well illustrated in the establishment of their branches in the different cities, whereby the traveling public, as well as local residents, have similar facilities in way of good service, the latest



news and advice, as can be found at the home office. The "Guide to Investors" will be mailed free upon application to any address. Besides general information it contains the history of all railroads and industrial corporations, their dividend payments, earnings, etc., and maps of all important railroads, and clearly written explanation of the methods of trading on margin, technical terms, etc.

**HORNBLOWER & WEEKS.**—One of the half dozen largest firms of bankers and brokers in Boston is that of Messrs. Hornblower & Weeks, who have offices in the Exchange Building, 53 State street. It was established August 7, 1888, has taken a leading place among the financial institutions of New England, and has become a notable factor in money circles in New York, where it has a branch house at 10 Wall street.

The high repute of Messrs. Hornblower & Weeks is based, not only upon the business record of the concern, but upon the personnel of the membership also. The gentlemen who compose the firm are: Henry Hornblower, John W. Weeks, Ovington E. Weller, James J. Phelan, James H. Wainwright and Edward L. George. Mr. Hornblower is a director of the First National Bank of Arlington; Mr. Weeks is President of the Massachusetts National Bank of Boston and of the Newtonville Trust Co.; Mr. Phelan is Vice-President of the Federal Trust Co. of Boston.

Having a New York establishment of their own, Messrs. Hornblower & Weeks are in a position to afford their customers especially valuable service, and their facilities in all departments are exceptionally complete. The positions to which various members of the firm have been chosen by other large financial institutions are an indication of the esteem in which are held the sagacity, conservatism and progressiveness which have always characterized the methods of the house.

**LAWSON, ARNOLD & CO.**—Among the Boston firms of bankers and brokers with offices on State street—the Wall street of Boston—that of Lawson, Arnold & Co. occupies a position of prominence. The finely appointed offices of this company occupy the best floor of the Worthington building, at 33 State street, corner of Congress street, and are just across the way from the Boston Stock Exchange. Lawson, Arnold & Co. are a comparatively new firm, since it was established in January, 1900, but its members had personally been identified with the financial interests of commercial Boston for many years. The firm was organized to carry on a general banking and brokerage business, and its members are Thomas W. Lawson, Allen Arnold and Henry H. Arnold. The house has a very large clientele

throughout the New England States, and the brokerage feature of its business is that to which the major part of its effort is directed. Its counting rooms are hives of industry during exchange hours, and the twenty efficient employees of the house are kept busily engaged. Private wires to New York and all the aids to the modern brokerage business are at the disposal of the firm's customers, and its members occupy a prominent position among the members of the Boston and New York Stock Exchanges, of which Mr. Allen Arnold is a member.

**MITCHELL, KNAPP & CO.**—A firm that stands high in the New England world of finance is that of Mitchell, Knapp & Co., which is located at 59 Congress street and 48 Water street, Boston. Although this firm is comparatively young, having been established on January 1, 1900, its members have by energy and good business methods placed it on a solid foundation. They do a regular banking and brokerage business, making a feature of railroad securities, which is their specialty. Henry Mitchell and Charles Henry Knapp are the members of the firm, and they offer every inducement to their customers and the best of service. The commodious office of Mitchell, Knapp & Co., located in the midst of other large financial houses are convenient headquarters for customers, from outside points who may be visiting the city. They do a large business in various parts of New England, and more particularly with those who are interested in railroad stocks.

Either or both members of the firm are always in their office, to personally attend to the wants of their many customers, and it is such courtesies as this and close attention to the trade that is greatly responsible for the fast and ever increasing business of the firm of Mitchell, Knapp & Co.

**Paine, Webber & Co.**—At the corner of State and Devonshire streets, in the center of Boston's commercial district, are the offices of Paine, Webber & Co., bankers and brokers, a firm which is rapidly forging to the front among similar Boston companies. Since Boston is in reality the commercial backbone of New England it naturally follows that its banking and brokerage business is carried on by a multitude of firms, each differing somewhat from its fellows in the class and variety of the business transacted. Paine, Webber & Co. have a high class clientele. Their customers come from all parts of New England, and their facilities for the transaction of a banking and brokerage business are of the best. The firm is made up of William A. Paine of the Boston Stock Exchange and Charles H. Paine of the New York Exchange, thus putting



the patrons of the company into touch with the two busiest parts of the Eastern section of this country. Private wires, long distance telephone, the regular ticker and messenger service, as well as the facilities of a finely appointed and up-to-date office are at the disposal of their clients, and their business is a growing one along firmly established lines of action. Patrons of this house are those who appreciate a high class, reliable and progressive service, and their number is increasing constantly.

**RICHARDSON, HILL & Co.**—Among the substantial and conservative banking houses of Boston, none takes a higher place than Messrs. Richardson, Hill & Co. Their offices at 40 Water street, in the heart of the financial district, are a center for investors and for many large money interests.

Besides buying and selling stocks and bonds in all markets, this firm does a general banking business, receiving deposits subject to check at sight. It deals largely in commercial paper also.

The firm of Richardson, Hill & Co. was established in 1870, and has always commanded the confidence of financiers. It consists of Spencer W. Richardson, William H. Hill, Henry W. Dodd and Frank E. James.

**E. H. ROLLINS & SON.**—In these days of general investment for income or for speculative purposes only, it has naturally come about that certain firms have associated themselves directly with one branch of the business or the other, without mingling the two separate interests. Among the many firms in Boston handling securities, either as brokers or as trustees, the firm of E. H. Rollins & Son (incorporated) has become known very generally among investors as dealers in high-class investment securities, that is, longtime railroad and municipal bonds and similar securities which are purchased as a matter of safe investment where a constant income is desired. This branch of commercial business is entirely different from the buying or the selling of stocks or bonds upon commission for the purposes of mere speculation, since the company handling

such securities virtually stakes its business reputation upon the safety of the bonds sold to the investor. The E. H. Rollins & Sons' corporation, which was established in 1882, has a capitalization of \$300,000. Its offices at 19 Milk street are commodious and splendidly equipped, and its forty or more employees are both capable and efficient. During its twenty years of business life this firm has secured a large and growing clientele of New England investors, and the securities which it handles are of the highest class.

**TOWER, GIDDINGS & Co.**—One of the oldest private banking houses in the City of Boston is Tower, Giddings & Co., located at 105 Devonshire street. This firm was established in 1867 by Messrs. W. A.

Tower and E. L. Giddings. These two gentlemen, together with Messrs. W. L. Underwood and Richard G. Tower constitute Tower, Giddings & Co. at the present time. During the thirty-four years that this house has been established it has always done a strictly commission business in the line of brokerage, confining itself particularly to high-class investment securities. Mr. W. A. Tower has long been prominently identified with the banking interests of Boston, having been a director of the National Bank of the Commonwealth from



STATE STREET—Boston's Financial Quarter

the time of its organization, and President of the same bank at the time of its consolidation with the National Shawmut Bank, also for the past twenty years he has been a trustee of the Boston Five Cents Savings Bank.

Mr. E. L. Giddings is a member of both the New York and the Boston Stock Exchanges and Mr. R. G. Tower is a member of the Boston Stock Exchange. The New York office of Tower, Giddings & Co. is with Tower & Sherwood, 10 Wall street, with which it is directly connected by private wire. No banking house in Boston holds a higher position than Tower, Giddings & Co.

**TOWLE & FITZGERALD.**—Among the younger firms of Boston stock brokers, which have made for



themselves niches in Boston's commercial edifices is that of Towle & Fitzgerald, with their offices and counting rooms at 18 Post Office Square. Although the partnership was not consummated until February 1st, 1899, the business of the firm has grown with constant and permanent increase, until to-day twenty-three employees are upon the pay-rolls of the concern, and others must soon be engaged. It may not prove true in all cases that additional employees means additional business, but with the brokerage house of Towle & Fitzgerald there can be no doubt about it. The firm is an enterprising one, and its members are filled with the characteristic American spirit of push, combined with the ability to see an enterprise through to successful fruition when it has once been launched. Hence, it is no surprise to their business associates that success in their chosen line is theirs in ample measure. Customers of this firm are given the advantages of good service on both the Boston and New York Stock Exchanges finely fitted and centrally located business rooms, and in fact every requisite to the expeditious buying and selling of stocks, and it has naturally followed that the firm has forged rapidly to the front.

F. M. TUCKER & Co.—Among the many firms of bankers and brokers with offices in the "Wall Street of Boston" is that of F. M. Tucker & Co. at 60 State street. Active, progressive and with a large clientele of customers in different parts of New England, this firm is well equipped with all the machinery of a modern brokerage business. Its members are also members of the Boston Stock Exchange, and in addition are in intimate touch with the New York Stock and Cotton Exchanges, and with the Chicago Board of Trade, by means of private wires to affiliated brokerage firms in these cities. This ability to furnish a safe, expeditious and reliable service is so well appreciated that the commodious rooms of the firm are thronged with customers during Exchange hours, and the large

corps of capable and gentlemanly employees are kept busily engaged in carrying through the transactions inaugurated in the public rooms of the company. In addition to the ticker service and the special wires to metropolitan marts of trade, the customers of this company have the benefit of the long distance telephone, with private booths, and retiring rooms for the transaction of private business, as well as the use of messengers. The offices of the firm are in the heart of the business district as they are directly across the street from the Stock Exchange.

TUCKER, ANTHONY & Co.—The old established firm of Tucker, Anthony & Co. occupies a prominent position among the banking and brokerage firms carrying on business in Boston. The members of the firm are William A. Tucker, S. R. Anthony, Philip L. Saltonstall and Nathan Anthony, all men of the highest standing in the business community, and for many years associated intimately with Boston's commercial development. Conservative, yet progressive, and with a reputation for business-like methods and sound principles, this firm has gathered together a splendid clientele of customers. While doing a regular banking and brokerage business the company makes a specialty of sound investment stocks and bonds, and is possessed of unusual facilities for handling such orders on both the Boston and New York Stock Exchanges. The firm's New York correspondents are Thomas L. Manson & Co., at 71 Broadway, with whose offices they are connected by private wire.

The office of Tucker, Anthony & Co. are at 53 State street, in the Exchange Building, and in point of fitting and completeness of equipment for the business carried on there compare favorably with any in Boston. Dealing as it does in sound investment stocks this company has placed itself firmly upon the pedestal of public confidence, and is reaping its reward in a constantly progressing business.





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FOREIGN EXCHANGE.

LETTERS OF CREDIT.



# The Making of Textiles and its Allied Branches, the Industry that Leads all Others in New England.

ITS HISTORY BEGINS BACK IN THE EIGHTEENTH CENTURY—ITS GROWTH CO-  
EXTENSIVE WITH THE DEVELOPMENT OF THE WHOLE COUNTRY—  
NEW ENGLAND COTTON AND WOOLEN MILLS BLEACHERIES,  
AND CARPET FACTORIES. LEAD THE WORLD.



**T**HE textile industry of New England has for many years been among the most important of its manufactures, and to-day, taken with its allied branches, exceeds any other in the gross value of its products. Its history begins back in the eighteenth century, and its growth has been co-extensive with the development of the whole country.

Great difficulties have been overcome in the manufacture of textile fabrics of every style, until to-day New England's cotton and woolen mills, bleacheries and carpet factories are the equal, on the whole, of those of any other great manufacturing country. This is the greatest cotton-growing country of the world, and our wool clip is larger than that of any other manufacturing country; the New England mechanic is the most ingenious and skilled in the world; therefore it is only the result of a natural process of industrial evolution that New England is the great textile manufacturing centre that it is. In this, as in many other industries, Massachusetts leads the other States of the East.

## The Makers of Woolens.

NEW ENGLAND MEN THE BUILDERS OF A GREAT  
SUCCESS.

The breeding and raising of sheep, especially for their wool, to furnish raw material for woolen cloth and worsteds was first attempted in this country in New England; the factory making of woolen goods in the United States was first established in Massachusetts, and the first store for the sale of American woolens on commission was opened in Boston. As the population became more dense on the seaboard and the great prairies of the West gave room for ranching on a scale which the East could not afford

to give, sheep raisers turned toward the land of the setting sun; but the mills which gave them their market stayed in New England, and here more than anywhere else they have flourished and built up the wonderful business which reaches out for the world's markets to-day, and Boston, the country's chief mart for raw wool, became a great headquarters for jobbers of the finished woolens.

These bare statements show the importance given to New England by the development of one of the branches of textile making which has been brought to its highest state of perfection here and the importance which New England has been to one of the leading industries of the present time. But they give no idea of what has been involved in its growth—a series of struggles through disheartening difficulties and in most adverse conditions to successful achievement of the most emphatic kind. To a certain extent it is the story of the other great undertakings with which Yankee grit, inventiveness and shrewdness have set the older civilizations staring, but it has many interesting chapters which are all its own.

Up to the beginning of the last century America was obliged to look to England for practically all of its woolens. Household making of cloth had, of course, been going on since the days of the Puritan fathers, and in some places more than enough of it to supply the family wants was made, and it was sold profitably. The hand card, the spinning wheel and the clumsy wooden hand loom, handed down in many cases from the original settlers who, no doubt, had brought them from their homes across the sea, were the implements employed, and they were no more efficient than they had been for centuries in England and on the European continent. In a report to Congress on the subject of



manufactures, in 1791, Secretary Hamilton refers to the household manufacture of textiles and to the making of woolens in particular, saying that it was confined entirely to the field of family industry.

Two facts account in large part for the comparative slowness with which the factory or mechanical making of woolens was established and built up during the last half of the eighteenth century and the early part of the nineteenth. One was the lack of raw wool in the United States, the other the embargo England placed upon the exportation of textile machinery beyond her boundaries. In 1802 the

first flock of genuine merino sheep were sent to this country by its Minister to Spain, Col. David Humphreys of Connecticut. There were 100 animals in all, and they subsequently supplied the raw material for the establishment of Col. Humphreys's manufactory of cloth at Humphreyville, Conn. Other importations of sheep followed rapidly during the next ten or a dozen years. Prior to this period neither the quality nor the quantity of the wool supplied in this country was such as to boom manufacturing and attempt to use raw material brought from abroad showed it impossible to compete successfully then with the British

manufacturers. The commercial restrictions at the time of the War of 1812 are said by authorities to have done more than any other one thing ever did before or has done since to improve the domestic clip.

Heroic efforts were put forth to establish an American industry in the manufacture of woolen products by machinery and power as early as 1788, but the first endeavors in this direction were not very successful. They led to experiments, however, which resulted in the establishment at Byfield, Mass., in 1794, of the first woolen factory operated

by power in this country. As much of the difficulty of making satisfactory woolens could be traced to hand carding, the first improvements were mechanical cards. The first carding machine was set up at Byfield and then there was little further progress until the embargo of 1807 and the non-intercourse act of 1809 threw the people of the United States suddenly on their own resources. They found themselves obliged at a moment's notice, as it were, to make at home what they had before very largely imported, and they took up the task with enthusiastic energy. No other industry

was so prominent in the public eye, during the five years immediately preceding the War of 1812 as the manufacture of wool. Factories were built and the surplus of farm labor was diverted to the mills, so that in 1810 the census takers found that woolen products to the value of \$25,608,788 were made and 5,452,960 yards of cloth, worth \$4,117,308, turned out, as contrasted with the 15,000 yards annual capacity and a yearly output worth \$75,000 credited to the mills at the beginning of the century, when the first census was taken.

The necessity of furnishing the army and navy of the War of 1812 with all manner of woolen cloths

gave the industry a special impetus. The spinning jenny, first introduced in America by Rhode Island mills in 1804, came into general use, and native invention began, the activity which has never yet ceased. In the single year of 1812 the United States Government issued 237 patents on textile machines, largely to be used in woolen factories. Steam made its first appearance in the woolen mills at about the same time.

The declaration of peace at Ghent nearly prostrated the American woolen industry, for importations from England recommenced, and the state of



EXCHANGE CLUB.

*This is a down-town organization of business men, and professional men, begun in 1892, and incorporated a year later. It has numerous dining and lunch rooms, as well as apartments for social relaxation. Its members number about nine hundred.*



wool supply, the still imperfect machinery—less efficient, of course, than that which its foreign competitors had been working over for many years—and the reaction of prejudice after the cessation of hostilities proved nearly fatal handicaps. Many of the manufacturers of that day had rushed into the business without proper training or sufficient capital, led on simply by the rewards it offered under the unusual conditions arising from the war, and they suffered in the reaction, of course. Finally, they turned to Congress for relief, and the tariff act of 1816 was largely the result of their efforts. Then, for the first time, the woolen industry was placed on a really stable footing and it has ever since been working upward and forward.

The representations which were made to Congress by the wool manufacturers in 1816 declared that \$12,000,000 was invested in the industry, that \$7,000,000 worth of raw material was consumed and \$19,000,000 worth of goods produced in the whole country. The latest figures issued by the Massachusetts Bureau of Statistics of labor show a very interesting contrast on these points and give some idea of the development of this industry, which is now confined in great part to New England and has become one of the most important branches of Massachusetts manufacture.

The Bureau of Statistics considered 140—not all, by any means—of the woolen making establishments of the Commonwealth. They represented an investment of close to \$25,000,000—twice as much as the manufacturers of the early days, who are suspected of having exaggerated somewhat, too, claimed for the whole United States. They used stock valued at \$21,898,179, an increase over the consumption by this one State in the previous year of almost three and a half millions and tremendous increase in actual quantity over the estimate for all the States of 1816, when prices were many times what they are now. The product of Massachusetts mills was set by this recent report at a little more than \$38,000,000—not quite six millions gain over the preceding twelve months. Here again the valuation of Massachusetts alone is now double what it was for the entire United States in 1816, and the quantity is proportionately greater by reason of the difference in prices.

This country is rapidly becoming the great wool manufacturing centre of the world. Years ago it passed the Continental European nations, and it is pressing England harder and harder in the contest for supremacy in this branch of industry. The opportunities for special, technical training, which is of the utmost importance in this particular manufacture, and broad American energy have done much to

put the United States in its present position and are doing more every day. The quality of American goods is kept at a higher point in nothing else than it is in woolens, and other factories are turning out to-day the best goods that can be found in any market.

The exportation of them is insignificant at the present time, for as yet they are not produced in sufficient amount to much more than supply the demand of this country's rapidly increasing population. Where they have gone abroad, however, they have won their way easily, and there is every indication that their future, under right conditions, will be simply another step in the American invasion of the mercantile world. The taste, the quality, and every advantage in workmanship and manufacture are on their side.

It is a matter of much pride to New England and cause for much honor that she has fostered so great an industry, brought it up from nothing, watched over and protected it when its lines lay in hard places, brought it through serious crises in the face of overwhelming odds, given it her intellect and her wealth, and made it powerful and respected and a credit to the whole nation.

AMERICAN WOOLEN CO.—There is probably no greater corporation in New England, excepting perhaps the quasi-public service corporations, than the American Woolen Co. Necessity for economy in the manufacture and sale of woolen goods was the chief reason for the organization of this immense concern, which, by combining many, in fact almost all of the woolen mills of New England, and concentrating their operations, has been able to reduce gross expenditures in the production of goods, and in some cases increase the output of the mills. Like many other great corporations of the present day, in this country, the American Woolen Co. is of recent origin. This company was incorporated on March 26, 1899, and began business in the following month of that year. It has a capital stock paid in, of \$49,501,100, of which \$20,000,000 is preferred stock and bears 7 per cent. interest. The par value of the shares is \$100 each, being fully paid, non-assessable and without personal liability. The company is authorized to issue \$40,000,000 of common stock and \$25,000,000 of preferred stock.

Notwithstanding the fact that a great sum of money was required, the organization of this company was effected without the issue of bonds. The stock subscription provided working capital in a sufficient amount to meet the requirements of business. The properties are free of all encumbrances, excepting unmatured bonds existing at the time of the purchase of two of the mill properties.



The American Woolen Co. operates twenty-five various woolen or worsted mills, and to run these mills, it employs 20,000 men. No other figure can be so impressive as indicating the magnitude of the work carried on by the company as that which shows the great army of employees which it carries on its pay-rolls. The plants of the American Woolen Co. comprise 603 acres of land,—equal to a good sized township, and the mill buildings, principally of stone and brick, containing 5,480,065 square feet of floor space. The equipment includes 298,980 spindles, 541 sets of cards, 166 combs and 5,410 looms. The condition of these properties was excellent at the time they were purchased, and they have been kept at the highest point of efficiency. Since the organization of this company several of the mill buildings have been materially enlarged, and the equipment of the various mills has been improved, increased and readjusted with a view of concentration of operation, economy of production, and increase of output. The expenditure for improvements and permanent additions of this character up to January 1, 1901, amounted to about \$1,750,000 with the result of increasing the productive power of the mills about 15 per cent.

It is interesting to note in the Treasurer's report that the net sales of this company from the time it began business, April 17, 1899 to January 1, 1901, amounted to nearly \$51,000,000, and produced profits of over \$5,500,000.

The wide range of the products of the American Woolen Co. is shown in the following classes of goods which it advertises. Beavers, kerseys, fizes, meltons, thibets, wool and worsted, plain and fancy overcoating, coverts, broadcloths, venetians, granites and vieunas; piece dye and mixed clay diagonals, fancy weave piece dyes and mixtures serges, wool and worsted cheviots, all grades of worsted and wool fancy trouserings and suitings, and wool and worsted mereerized fabrics. This company also spins worsted yarns, by both English and French systems. For its products, it received the highest award, gold medal at the Pan American Exposition.

All the plants of the American Woolen Co. are held in fee with the exception of the National and Providence Mills, which are held through ownership of 97 39-100 per cent. of its capital stock. In other words the company now owns all of the common stock and 4,478 shares of the preferred stock of the National and Providence Worsted Mills; the American Woolen Co. also holding

a contract from a responsible party for the delivery to it of the balance (522 shares) of the preferred stock of the National and Providence Worsted Mills. The personnel of the executive management and directorate is the same as that of the American Woolen Co.

The company has established a selling department for its products, and by this plan has received substantial benefits. It completes the organization, and renders it more effective because of closer relations with the market. The American Woolen Co. properties include the following mills: Washington Mills, Lawrence, Mass.; National and Providence Worsted Mills, Providence, R. I.; Saranac Mills, Blackstone, Mass.; Fulton Worsted Mills, Fulton, N. Y.; Fitchburgh Worsted Mills, Fitchburg, Mass.; Beoli Mills, Fitchburg, Mass.; Valley Worsted Mills, Providence, R. I.; Riverside Worsted Mills, Providence, R. I.; Assabet Mills, Maynard, Mass.; Sawyer Woolen Mills, Dover, N. H.; Bay State Mills, Lowell, Mass.; Beaver Brook Mills, Lowell, Mass.; Vassalboro Woolen Mills, North Vassalboro, Me.; Puritan Woolen Mills, Plymouth, Mass.; Anderson Mills, Skowhegan, Me.; Kennebec Mills, Fairfield, Me.; Manton Mills, Manton, R. I.; Anchor Mills, Harrisonville and Pascoag, R. I.; Chase Mills, Webster, Mass.; Brown Mills, Dover, Me.; Ray Woolen Mills, Franklin, Mass.; Weybosset Mills, Providence, R. I.; Baltic Mills, Enfield, N. H.; Moosup Mills, Moosup, Conn.; Lebanon Mills, Lebanon, N. H.

The officers of the American Woolen Co. are as follows:

President, Frederick Ayer; Vice-President, Frank Hones; Treasurer, William M. Wood; Assistant Treasurer, Edward P. Chapin; Secretary, Joseph T. Shaw. Directors: Frederick Ayer, Lowell, Mass.; Frank Jones, Portsmouth, N. H.;

AETNA MILLS,

MANUFACTURERS OF WOOLENS.

KERSEYS, CLOAKINGS, ETC.

266 DEVONSHIRE STREET,

BOSTON.

49 LEONARD STREET,

NEW YORK.



William M. Wood, Andover, Mass.; James Phillips, Jr., Boston, Mass.; Edwin C. Swift, Boston, Mass.; Charles R. Flint, New York; Francis W. Kittredge, Boston, Mass.; Samuel P. Colt, Providence, R. I.; Edward P. Chapin, Andover, Mass. and J. Clifford Woodhull, Summit, N. J.

William M. Wood, the Treasurer, has his office in the Ames Building, Boston, Mass. The selling agency of the American Woolen Co. is in New York City at 66-72 Leonard Street and the selling agent is J. Clifford Woodhull, whose office is at that address.

L. C. CHASE & CO.  
—The firm of L. C. Chase & Co. was established about 1880 by L. C. and H. F. Chase. They commenced in a small way the manufacture of harness for retail. About 1855 they began to manufacture horse blankets, halters and surcingles in a small way for the wholesale trade. The business was started in part of the store now occupied by the French Carriage Co., on Sudbury street. In 1855 they moved to the corner of Sudbury and Portland streets, and occupied that block, from which time the business grew rapidly.

In 1868 they became associated with Thomas Goodall in the manufac-

ture of carriage robes at Sanford, Maine, L. C. Chase & Co. taking the sale of the goods. About this time they also became the selling agents for the Troy Blanket Mills, at Troy, N. H., which

corporation has doubled its capacity several times in the last twenty years. Eighteen years ago they moved to their present quarters, 129 Washington street, and since their establishment at the latter place they have given up retailing, devoting their entire time to the wholesale or jobbing trade.

Two years ago they moved their manufacturing plant from 129 Washington street to a very large factory at the corner of Massachusetts avenue and Osborn street, Cambridge.

They dispose of the product of about 1,800 operatives and represent, without doubt, the largest manufactories in the world of carriage robes, Mohair plushes, horse blankets and rubber ducks and drills. This concern has had a steady and continuous growth, keeping pace with the growth of the country.

The Chases were succeeded about twelve years ago by John Hopewell, O. F. Kendall and Frank Hopewell, the present members of the firm.



OLD SOUTH MEETING HOUSE

*This famous landmark of Boston is often called "The Sanctuary of Liberty." Events famous in the history of Boston and the country have taken place within its walls, including the town meeting which demanded the removal of the British troops from the city following the "Boston Massacre;" the meeting of protest against the importation of tea; and Warren's oration on the anniversary of the massacre, in March, 1775. During the first part of the Revolution it was used as a riding school for the British troopers, the pews and other furniture having been taken out.*

*In 1872 its use as a place of worship was discontinued by the Old South Society, which three years later moved to its new church in the Back Bay. In 1876 it was sold to be torn down and to be replaced by a mercantile building, but at this point the Old South Presbyterian Committee stepped in and rescued the property, purchasing it conditionally for four hundred and thirty thousand dollars. It now contains a valuable and interesting collection of historical relics.*



## Cotton Goods.

A GIGANTIC INDUSTRY IN WHICH NEW ENGLAND EXCELS

Considerably more than a quarter of all the money invested in manufacturing in Massachusetts is in the capital of the makers of cotton goods. The most recent State statistics of manufactures, issued in 1901, showed the total amount employed in this great industry to be \$129,544,848, an increase of \$50,000,000 in five years, and of more than a million and a half in a twelvemonth.

In the matter of industry product of the amount paid in wages and of "profit and minor expense fund"—three of the principal points covered by the Bureau of Statistics of Labor in detail—cotton goods stand at the head of the nine leading industries, and in the value of stock used and of goods made they are second only to boot and shoes, which, by the sudden development of recent years, have usurped the position cotton textiles held for a century. On every point the cotton mills show a gain each year and no competition in new fields—the South being, of course, the chief factor—can shake them from their position.

The practicality and determination of the Puritan spirit utilizing to the utmost the wonderful natural advantages of location and water-power which New England proffers with such a generous hand, have

been from the beginning and are to-day the basic elements of the success of the cotton industry here. Yankee inventiveness and Yankee shrewdness in its best sense have developed it, splendid shipping facilities that have extended its market to the nethermost parts, and high repute grown out of the hardest tests and increased by consistent progressiveness have fostered it. The story tells of a series of struggles through most adverse conditions and over seemingly unconquerable difficulties to splendid achievement.

There is no phase of her history of which New England can rightly be prouder than the development of the commercial industries which have been the mainstay of the republic at all times and on which its power and position among nations so largely depend. In this satisfaction none of the six Commonwealths has a larger share than Massachusetts. Here the industries found their first abiding place; here they have always found encouragement and, when need be, aid and protection; here were laid the strong foundations of a reputation for integrity in wares and in methods which have given the American man-

ufacturer strength and standing abroad, as well as at home. And the first great industries were textile industries, and the first among the textiles was cotton cloth.

Until the middle of the eighteenth century spin-



FANEUIL HALL.

*Known throughout the country as "The Cradle of Liberty," the first Faneuil Hall, built in 1742, was primarily a market house, and was set up on the site of the town market house in old Dock Square, which had been destroyed by a mob "Disguised as clergymen." Peter Faneuil built the structure, and gave it to the town. The first public gathering in the new hall was curiously, the delivery of a eulogy upon Faneuil himself, who died suddenly in March, 1743.*

*Burned in 1761, the building was replaced by the town, and was by the orator, James Otis, dedicated to "The cause of Liberty." In 1805 the building was materially enlarged, and now stands as it was after the changes were made.*

*During the siege of Boston it was converted into a playhouse. With this single exception its mission has been a serious one, for from its rostrum orators have spoken from revolutionary times to the present. The hall is never let for money but is at the disposal of the people whenever a sufficient number of persons, complying with certain regulations, ask for the opening.*



ning and weaving were done entirely, by hand. It was long after that before machinery became really useful in textile making, and it was a full hundred years before the great mills began their work. Meantime every family was obliged to make its own supply of cotton cloth, and the most familiar picture of the Puritan maiden or house-wife shows her at her distaff or spinning wheel.

When the new nation had subsided from the excitement and disquiet incident to the Revolutionary War, it discovered that great progress had been made by the mother country in cotton cloth making, and with characteristic energy turned its attention to that industry, which was then the most prominent and important one. The obstacles put in the way of obtaining machinery or even patterns of machinery from Great Britain served only as a stimulus to the Yankee inventor, and it was not long before he had equipped the Yankee manufacturer as well as his brother across the water, was equipped. The inventor's work has never ceased, and to-day the American textile mills are the best equipped, best managed and best producing mills in the world.

The cotton cloth making business, as it exists now, started in Lowell in 1843. The exceptional water power which the Merrimac River could furnish first attracted attention to that location, and far-seeing men who were already making cotton goods elsewhere—on what would be considered a very small scale nowadays—took prompt advantage of it. One mill followed another in rapid succession until the greatest centre of its kind on the continent was built up by degrees. Meanwhile other men had been equally active in other places and other textile making enterprises of great importance had come into being. New Englanders were back of them and their indomitable perseverance brought immediate vigor and ultimate success. From the day of its inception cotton cloth making has flourished in New England as nowhere else.

When the South began extensive mill construction there were predictions of serious results to New England cotton interests from Southern competition, which would have the advantage of obtaining its raw material almost without transportation cost. There was a natural flurry which made some impress, probably, on the statistical figures, but from which recovery was almost immediate. The figures of the building of mills during the last half of 1901 show that New England does more than hold its own. Not only have the old establishments, with their enormous productive capacity, flourished, but the demand has been such that five new cotton mills have been built, three of them being located in Massachusetts.

This gain, despite powerful competition, is proba-

bly traceable to four things, which, while they in no way intimate any discredit to other parts of the country, have always given this section especial advantages in both domestic and foreign markets. One is the quality of the goods produced; another the circumstances and surroundings in which they are made; third, the peculiar transportation advantages which are enjoyed here, and fourth, the character of the men engaged in the vast textile business, those who own the manufacturing plants and whose money operates them and brains direct them.

There is no question but that cotton goods are made under well-nigh ideal conditions in the New England mills. The materials and machinery are the best to be had; that is to be taken for granted in the case of New England manufactures to-day. But the operatives are of superior intelligence and character beyond the mere skill called for by their work, and their employers, realizing the commercial value of that, as well as having a wholesome idea of duty derived from Puritan ancestry, perhaps, do all in their power to encourage and improve the excellent state of affairs. The sanitary condition of the mills and the operatives' homes is carefully watched over, and whatever is thought to give the product worth and quality in other ways is liberally provided.

The transportation facilities and advantageous freight rates bring the mills closer to the supplies of raw material and to the customer as well at an economical expenditure. The men who direct the great mill enterprises are, many of them, descended from the founders of their establishments. They have grown up with their factories and their enterprise and keenness have figured largely in the latter's development. They have the respect and confidence of the commercial world.

From a child of immediate necessity cotton manufacture here has grown to be of far-reaching importance. One indication of its wide market is in the loss of trade for a time which resulted from the war in China and the prompt improvement when hostilities ceased and the business of the Celestial Empire was resumed. There is no country on the face of the globe that it does not touch, and there are many in which it is supreme.

Some of the plain facts about the making of cotton goods in Massachusetts, as told by the last State statistics, are interesting. That alone of the nine leading industries approached doing business to the full amount of its capacity, the average proportion for the year being more than 91 per cent. The average yearly earnings per individual increased not quite 5 per cent. in the same period. The total amount paid employees in wages was almost 12 per cent. larger than it had been the year before,



while the percentage of increase in the number of persons employed was but 2.71.

There were, on the average, 92,625 operatives, 44,144 of them women or girls. The largest number of employees found occupation in March, the smallest in August, when 4.1 per cent. of the maximum number were unemployed. This is a very much better showing than any other industry made.

The value of the goods made in the year these statistics cover was \$127,964,445, a gain of something more than \$27,000,000 over the record of the year before. Only two other industries passed the hundred million dollar mark that year, and one of those was \$25,000,000 below cotton goods.

ATLANTIC COTTON MILLS.—The Atlantic Cotton Mills of Lawrence, Mass., have for many years manufactured the celebrated and popular Atlantic wide sheetings and pillow tubings in all widths.

This company has always maintained a high standard of excellence in the United States and abroad. They make a large variety of narrow sheetings and other fabrics, among which are the "Standard Sheetings," which are very popular with buyers all over the world.

In the far East "Standard Sheetings," the product of the Atlantic mill find their way and have a very firm hold on the buyers in that country. The people of the Indian and Oriental countries are known as the best judges in this class of fabrics and only use goods of a very high standard. This is perhaps the reason why the Atlantic mills wisely chose an eastern name for their goods sold in those countries. The trade mark used there is "Leopard" (which is generally regarded as the "most beautiful of beasts"), and the name of which is a synonym for excellence and reliability of manufacture.

The Atlantic Cotton Mills were established in

1846, and during the last half century have never deviated in the excellence of their justly famous high class product of the mills, which are sold to the trade by the well-known dry goods commission houses of Messrs. Armory, Brown & Co.

PEPPERELL MANUFACTURING CO.—The growth and development of the cotton manufacturing industry in New England is well represented by the Pepperell Manufacturing Company, which has its mills at Biddeford, Maine. This company, established in 1844, has participated for fifty-seven years in the varied history and successes of the cotton manufacturing industry. It has seen marvelous changes during that time in methods and machinery, and has always kept in the forefront of this great industry.

The company has a capitalization of \$2,556,000, and its mills give employment to 3,500 operatives. Cotton drills, flannels and sheetings are the chief products. The Treasurer is Mr. P. Y. De Normandie, who has his office at 30 Kilby street, Boston.

TREMONT & SUFFOLK MILLS.—It was seventy years ago in Lowell, Mass., that the cotton manufacturing

industry now represented by the Tremont & Suffolk Mills, was first established. Forty years later, August 19, 1871, the present corporation was formed by a consolidation of the Tremont Mills and the Suffolk Manufacturing Co. These mills manufacture canton and French flannels, cotton blankets and hosiery yarn and have a world-wide reputation for their products. In these mills 3,500 persons find employment, and the capital represented in the business is \$2,000,000. The Treasurer is A. S. Covell, whose office is at 70 Kilby street, Boston, Mass. Smith, Hogg & Gardner are the selling agents both in Boston and in New York.

YORK MANUFACTURING CO.—Among the older New England corporations engaged in the manu-



CONGRESS STREET, BOSTON.



facture of colored cotton goods are the York Manufacturing Co., of Saco, Maine, and the Everett Mills, of Lawrence, Mass. The former company was established in 1831, and for seventy years had held a prominent place among the cotton manufacturing concerns of New England. It is capitalized for \$900,000, and employs 1,650 hands. The Everett Mills, which manufacture the same class of goods, have a capital of \$700,000, and employ 1,050 operatives. These mills were established in 1860, and the work thus inaugurated during the trying days of the Civil War has been carried on with increasing output until the present time.

## **Cotton and Woolens.**

TWO GREAT INDUSTRIES COMBINED SUCCESSFULLY AND PROFITABLY IN MASSACHUSETTS.

While the manufacture of cotton goods and the making of woolens are distinct industries, their combination is not unnatural, and at least one concern in New England is engaged in both lines at the same time. The magnitude of such an enterprise and the intricacies of its management are as evident as its advantages.

Not only are the operations in cotton and woolen cloth making different in so far as the nature of the mechanism used goes, but the training and experience required for one are essentially dissimilar from those the other needs. The raw materials for the two kinds of goods and their finished products are bought and sold in widely separated markets, and dealing in each is a business by itself. Success is, of course, dependent upon a thorough understanding of all the minute details of both industries if they are to be combined in one concern, and the success which has been attained in New England in such circumstances is a high tribute to Yankee genius and thoroughness.

That the part of the country where American textile making had its origin, where it grew so remarkably as it has in the last century and a half, and where it has always been strongest, should be the place for such a combination as that of cotton and woolen milling is natural and that such satisfactory results should be wrought is doubtless due to the elements which enter into New England textile enterprise.

## **Textile Bleacheries.**

COTTON FABRICS OF THE EAST AND SOUTH FINISHED IN GREAT NEW ENGLAND ESTABLISHMENTS.

A visit to a big bleachery, several of which of great capacity are located in the vicinity of Boston,

is quite apt to be a revelation to one who is unfamiliar with the method of transforming cotton cloth from the natural color into a condition of snowy whiteness all ready for the market. The visitor is also sure to be surprised to learn how extensively this industry is carried on all about us.

In the first place New England is a center for the manufacture of cotton fabrics, great mills being located in every State, and as all this great output has to be bleached, it is natural that the bleacheries situated near the metropolis of the East should be well patronized. The local bleacheries receive their unfinished material from all the great mills of the East, and from many in the South, while the major portion of the bleached cloth is shipped to the West.

Some idea of the enormous industry that the bleaching of cotton goods is in this locality is gained from the statement that one big bleachery situated near Boston has a capacity of 150 tons per week. It is understood that these works are run to their full capacity the greater part of the year, and fall below it only during certain quiet seasons.

The origin of the processes of bleaching is lost in obscurity. Linen bleaching was known in Scriptural times. The bleaching of cotton goods has been done in the United States for a hundred years or more, the firm above alluded to having been established very early in the nineteenth century. The industry has steadily grown, keeping pace with the manufacture of cotton fabrics in this country. The bleacheries of Massachusetts are among the largest in the world.

## **As a Wool Mart.**

BOSTON LEADS THIS COUNTRY AND IS SECOND TO LONDON ONLY—  
A GREAT RECORD.

As a wool market Boston leads, and always has led, the country for a long distance. It is second to London alone. In 1899, indeed, its transactions in wool were the largest in the world. It has never but twice before done such an enormous volume of business in this particular line as it did last year.

These two "banner" years—1897 and 1899—were characterized by very unusual speculative activity, with the consequent boom in prices, from which it required a considerable time to recover. The result was that in 1900 sales fell off considerably, but when the tide turned, as it did early last year, the rise was rapid, and the total for 1901 was almost twice that for the preceding twelve months. The supremacy and growth of Boston as a wool market is strikingly told in the statement of the



number of pounds sold here annually since 1890, which follows:

Years.	Pounds.
1890 . . . . .	141,979,990
1891 . . . . .	142,652,560
1892 . . . . .	175,658,829
1893 . . . . .	124,171,000
1894 . . . . .	142,738,085
1895 . . . . .	219,564,247
1896 . . . . .	148,450,300
1897 . . . . .	361,632,100
1898 . . . . .	141,132,510
1899 . . . . .	347,185,776
1900 . . . . .	146,975,100
1901 . . . . .	272,738,900

Beginning with the year 1895, it will be seen that the years have alternated in respect to the volume of business done. In 1895 the sales reached a total of about 220,000,000 pounds, in 1896 they had dropped to 148,450,300 pounds. In 1897 they rose again, reaching the large total of 361,632,100 pounds. In 1898 they fell off again, the total declining to 141,132,510 pounds. In 1899 they again increased to 347,185,776 pounds, but during 1900 dropped to 146,975,100, and now, during the year 1901, they have risen to 272,738,900 pounds.

In the past year Boston imported but less wool than it did in 1900, the total in pounds being 53,488,023. Exports were practically naught—1,436 pounds.

As showing the lead which Boston has in wool dealing a comparison of the supplies of wool, exclusive of that in bond, in the three important markets of the country at the beginning of this year and last as follows:

	1901.	1900.
Boston . . . . .	80,110,000	94,749,000
New York . . . . .	8,879,000	14,259,800
Philadelphia . . . . .	17,685,000	22,682,646

The total supply in the United States at the same time, exclusive of wool in bond, was 177,191,000 pounds this year and 294,537,338 pounds last year. Boston, then, would seem to have almost one-half of the visible stock of the country. The decrease in the stock on hand from last year was due to the better general conditions and the Boston dealers, with the good prices they can command now and the steadiness of the market, have promise of another record year.

MAUGER & AVERY.—Among the wool brokers and commission merchants of New England the firm of Mauger & Avery, located at 105 Reade street, New York, with a branch at 564 Atlantic avenue, Boston, is well known as a house of conservative, yet progressive methods. The firm was established in New York in 1873, by Nicholas Mauger and

Charles Avery, and to-day the members of this house are considered among the leading authorities in this country on matters pertaining to wool, and have been appointed by the government as experts upon committees having to do with tariff classification of wool. Their business embraces the importing of high-class French wools, silk wools, Australian lamb wools, camels hair wools, cashmere, vicuna, etc.

## Cotton Buyers.

IMPORTANT FACTORS IN COUNTRY'S GREATEST TEXTILE-MAKING STATES—A GROWING BUSINESS.

Of course the cotton buyers are an important factor in the mercantile life of the States in which the manufactures of cotton are close to the top of the list of leading industries, and they have become of especial consequence to New England mill owners, since the springing up of competition in the Southern States, where it has the advantage of proximity to the plantations which supply most of the world with the raw material for cotton fabrics. In fact the buyers are becoming of greater importance with each year and with the constantly increasing consumption of the mills for which they act their business is expanding to greater proportions each month.

Ever since its recovery, after the interruption caused by the Civil War, the business of buying raw cotton has been a growing one. The development of Boston's coastwise shipping and of New England's railroad facilities, with the very favorable transportation rates which have accompanied them, have been supplemented in giving it impetus by the giant strides of the mills in their production of the finished goods and the output of thousands of additional spindles. With the markets of the world thrown open to the goods from American looms and print works, and the spreading reputation of American business men abroad, the amount of cotton purchased through New England buyers has increased from thousands of pounds to thousands of tons.

## Manufacture of Carpets.

A FLOURISHING, GROWING INDUSTRY, PRACTICALLY ALL OF WHICH IS NEW ENGLAND'S.

There are but two carpet weaving mills of consequence in the United States outside of New England. The full significance of that statement is evident when the amount of carpeting needed for the comfort of 90,000,000 people is considered. Making



carpetings is not so big an industry in Massachusetts as some other lines of manufacture, perhaps, but it is included among the nine leading industries, and shows a gain in volume of product and in profit every year which gives promise of a great future.

The growth of the carpet industry has, in a way, a special significance. Carpeting was, to a certain extent, a luxury in the early days of American textile making. Floor coverings were home-made in many places, and the market was proportionately unattractive by reason of its limitations. The importation of carpets was largely depended on to meet the demand. The American manufacturer had to take the field as a competitor to a well-established and prosperous trade. As has happened in many similar cases, however, when the scope of textile machinery had widened so as to include fabrics for the purpose of covering floors, the Yankee stepped forward, and by the quality of what he made and the economy of his method of making it soon had his rival hard pushed.

To-day there are no finer carpetings in the world than those made in this country. They have won a place of distinction in home and foreign markets alike. And much the largest part of them are the product of New England's factories.

**BIGELOW CARPET CO.**—The present Bigelow Carpet Co. was incorporated in 1899 with a capital of \$4,030,000, being a consolidation of the Bigelow Carpet Co., incorporated 1854 and the Lowell Manufacturing Co., incorporated 1828.

The invention of Erastus B. Bigelow of a power loom, marks distinctly an epoch in the manufacture of "Terry Fabrics" under which head all tapestry Brussels, tapestry velvet, Jacquard Brussels and Wilton carpets are classed.

The Lowell Ingrains were the first made on power looms and they took and have always maintained the first place in the market.

In June, 1866, Mr. E. B. Bigelow succeeded Stephen Fairbanks as President of the Bigelow Carpet Co., until his death, when Mr. James H. Beal was elected. Mr. C. A. Whiting succeeded H. N. Bigelow as Treasurer, and upon his death Charles F. Fairbanks was elected. The capital was increased to \$1,000,000 in 1875.

The recent union of the Lowell and Bigelow Companies secures to the new Bigelow Carpet Co. the best lines of Axminster, Wilton, Brussels and Ingrains made in the United States, and as evi-

dence of the popularity of this company's goods, and the steady demand for carpets in the United States, comparison may be made between the production of carpets in this country in 1810, about 10,000 yards, and the present output of the company's mills, over 7,000,000 yards yearly.

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THE CONTINENTAL MILLS,  
LEWISTON, ME.

SHEETINGS, TWILLS, LAWNS, SATEENS,  
MUSLINS, COARSE AND FINE YARNS, ETC.

BOSTON OFFICE:  
31 BEDFORD STREET.

C. H. WOOD,  
TREASURER AND SELLING AGENT.

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THE FARWELL BLEACHERY.

JOHN W. FARWELL, TREAS.

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MANUFACTURERS

SHEETINGS, SHIRTINGS, LAWNS, ORGANDIES,  
DIMITIES AND FINE FANCY GOODS.  
BOTH BLEACHED AND COLORED A SPECIALTY.

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LAWRENCE, MASS.

BOSTON OFFICE: 56 SUMMER STREET.



HAMILTON WOOLEN COMPANY,

BOSTON OFFICE,

18 POST OFFICE SQUARE.

LUCE & MANNING,

WOOL,

138 FEDERAL STREET,

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THE WALTHAM BLEACHERY AND DYE WORKS.

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NEW YORK.



# Textile Machinery and the Marvels of Mechanical Genius that Originate in Puritan Land.

NEW ENGLAND INVENTORS AND MACHINISTS LARGELY RESPONSIBLE  
FOR THE GROWTH OF MANUFACTURES—THE FIRST SUCCESS-  
FUL COTTON FACTORY IN THE WORLD—SOLID AND  
STEADY IMPROVEMENTS A MIGHTY  
INCENTIVE OF TRADE.



**I**T is owing to the fact that New England inventors and machinists have produced so much new machinery for the manufacture of textile fabrics that the textile industry has grown to such proportions in this part of the country. The first successful cotton factory in the world was started in Massachusetts, and from that day to this there has been a steady improvement in textile machinery.

A Boston man introduced the first power loom, which has been developed into a mechanical wonder. New England textile manufacturers have always been quick to adopt every improvement in machinery, and this has ever been a mighty incentive to its improvement and manufacture.

So successful have the makers of textile machinery been that they have been able to compete even in foreign markets with notable success and profit. Combined lightness and strength distinguishes New England-made textile machinery, much of which is manufactured in the old Bay State.

## **The Strong Element in American Progress.**

It was almost a necessary consequence, as it was certainly a natural development, that having given their first home to the great American textile industries New England should be foster mother to the manufacture in some ways most closely related to them—the making of textile machinery. So she is entitled to be called a special benefactress of the country, for the first American machine shops were built to produce textile machinery and from them—often in them—sprung up the host of me-

chanical wonders, of labor-saving and labor-helping devices, of marvelous engines and almost human mechanisms, which are the pride of modern times and which have been the greatest single factor in raising the United States to its high place among nations. And first and foremost among textile machines came and still stand those for making cotton cloth.

From the landing at Plymouth there have been weavers and spinners in New England. Exiles, practically outcasts, the puritan forefathers had to seek in their own rude homes the means of covering themselves from the inclemency of a climate which was harsher to them, because it was unaccustomed. It was not possible then to bring across the water what their needs cried out for, and so they set themselves to making it with their own hands. As others followed them, from England, and the necessity increased, industry kept pace. Many had worked in their old homes with spindle and shuttle, and their women knew the use of the carding comb and the wheel.

As the colonies grew and other thoughts than those of supplying only the most pressing wants of human life found place the making of materials for clothing and for household use suggested itself among the first, of course. Here the colonies found themselves in a difficult predicament, however, for the mother country, which had just begun the development of the textile industries by machinery, jealous of the future which she saw in them, forbade the exportation from her shores to any foreign parts of "utensils made use of in the cotton, linen,



woolen and silk manufactures" of her people. This set the spur at once to Yankee ingenuity and this same prohibition, which was continued in force almost until the middle of the last century, turned out to be the starting point of American industrial independence.

Cotton manufacture was what Great Britain especially wished to keep to herself, for in that had most of the mechanical improvements been made; in fact, the first textile machinery was contrived for the spinning and weaving of cotton. The Act of Parliament against exporting machines seems to have proved

This policy on Great Britain's part overreached itself. Furnished by nature with splendid power in her many streams, New England was not to be retarded in her progress by outside inference, and forced to be self-creative and self-reliant her machinists began with the textiles the wonderful mechanical contrivances which in their growth and broadening have won Yankeedom its most satisfactory reputation. American machinery is by every necessity of its being original, characteristic and effective to the highest degree.

The first recognition of the efforts of the early in-



MECHANICS HALL.

*This is the building of the Massachusetts Charitable Mechanic's Association, and was erected for the exhibition of American manufactures and mechanical arts. It is used also, however, for a great variety of public occasions where the size of the audience or the entertainment demands a large space. Besides the exhibition halls, it has a seating capacity of 8,000 people.*

insufficient, for it was later altered so as to include plans and models, the penalties for its violation were made severer and it was enforced with great care and stringency. Indeed, so close a watch was kept that when, as late as 1839, an English concern had secured a patent from this Government on one of its devices it was obliged to smuggle its patterns through France in order to reach its American representative.

ventors and manufacturers came from Massachusetts in 1786. The first textile machinery works of the New World began operations at Bridgewater just previous to that, and the Legislature appointed a joint committee "to view any newly invented machines that are making within this Commonwealth for the purpose of manufacturing sheep's and cotton wool, and report what measures are proper for the



Legislature to take to encourage the same." As a result of the report of this committee £200 was subsequently granted toward the completion of the machines, which were for carding and spinning cotton. They were not used for actual manufacturing, however, but were shown as models to diffuse information. The action of the State in the matter was none the less of permanent value, for it led ultimately to the successful introduction of the manufacture of textile machinery, and the advanced stand which Massachusetts took then she had never yielded, pushing ever forward and holding now the first place, so that all the nations are, one by one, turning to her as customers.

The earliest successful cotton factory in the country was located at Beverly, Mass., in 1787-9, and there were made the first parts of American spinning machinery. So Massachusetts saw the first models and the first practical results from which were established the enterprises outside of its boundaries and Rhode Island took the next step.

The introduction of woolen machinery came twenty years later than that of cotton machinery, and dates from the last year of the eighteenth century. In the household fabrication of woolen cloth the greatest trouble arose from hand carding with proper care in sorting and mixing the wool, which resulted in the uneven shrinking of the cloth when it was full and dressed. The carding machine was, therefore, the first step in the mechanical production of woolen goods, and it made its appearance here at Byfield, near Newburyport, in 1796. It was several years after power was applied to cotton making that it was first employed in woolen manufacture. Massachusetts was a leader in this branch of progress, too.

To a Boston man belongs the credit of having given the first great impetus to American mechanical invention, which seemed to have stagnated for the time being, by introducing the power-loom within the first fifteen years of the last century. The result of his accomplishments was the starting of the textile mills which have grown so tremendously and the first work in connection with the new enterprise was the building of a shop in which the machinery for the cloth factories could be made and repaired. At first all of the machine shops were connected with mills, and even now many of them are located in the great manufacturing centers where most of their trade is to be found; but in 1845 they became independent separate concerns, and to-day the business of making machinery is so individual that it has centers of its own.

The success of American textile machinery is distinctly a New England success, and its markets ex-

tends beyond all the seas. It results as much from quality, in both raw materials and in finish, as from the ingenuity which created it almost. The great resources of the country are brought close to the factories by the unequaled transportation facilities, and the best that the world gives is put into every part of every mechanism.

The superiority of American metal has long been acknowledged abroad, and it enables American manufacturers to construct machines of equal strength with those of foreign make, but much lighter, a very evident advantage. Lightness has figured largely in the ability of the United States to compete in foreign markets with profit and success, for the cost of freighting, so considerable an item, where necessarily heavy articles are handled, is reduced to a minimum.

The gracefulness of proportion and fineness of finish for which American machinery is distinguished have their practical uses. They encourage, and even enforce, greater care on the part of the operative, compelling the cleanliness necessary to perfect working order. Interchangeable parts and the extensive use of special tools in construction make for a precision of action and an economy of production unattained abroad. An advantage particularly noticeable in cotton machinery comes from the making of every part of a machine in the same shop, which is quite different from the European practice. The American product has then, for obvious reasons, much greater perfection than the foreign; its parts are better fitted, and it is more thoroughly one whole.

Many millions of dollars are invested in the textile machinery manufacturing enterprises of New England. From the humble beginnings of a little more than a century ago there has been a marvelous growth which has not known a moment of resting. As New England brains and energy and pluck have improved and enlarged on the original functions of textile mills the machinery has never been lacking to accomplish the new work, and in their turn the makers of machinery have stepped in the lead and shown how the parent industry could be brought to greater efficiency and economy.

This was all done at first in the face of competition made doubly powerful by legislative exclusion and prejudice abroad, but the merit of what the United States offered has broken down all the barriers which hedged the foreign markets until now one of the chief terrors of the "American invasion" of Europe is the invasion of American machinery, and at the head of American machinery marches American textile machinery. Even England—the strong competitor for a century, with every inclination and inducement to patronize this particular



Yankee industry as little as might be—is gradually giving way, and there seems no question but that the final supremacy of the almost human spinning and weaving mechanism of the New England shops is going to complete the victory of American skill, patience and energy the world over.

THE DRAPER CO.—In the manufacture of cotton machinery, the Draper Co. of Hopedale, Mass.,

well to state what no one has yet attempted to publicly contradict, that with the Northrop Loom, a weaver can produce from two to four times as much cloth, using less skill, and at less expenditure of mental and physical energy. This fact clearly shows the importance of the invention.

The business now under control of the Draper Co., a corporation organized under the laws of



THE EXTENSIVE PLANT OF THE DRAPER CO. AT HOPEDALE, MASS.

takes rank as the largest American producer, with the largest plant and the largest number of operatives. The history of this company illustrates the remarkable progress that has been made since 1816, when Ira Draper, inventor of cotton machinery, and the originator of this great industry at Hopedale, Mass., started to take out loom patents.

Many changes have been effected during the eighty-five years that have elapsed from the beginning, but it was Ira Draper's initiative that made it possible for the Draper Co. to gain the foremost place in the manufacture of cotton machinery. In the lines of spinning, warping, spooling and plain weaving, nearly all the really vital changes of the last thirty years have been produced by the Draper Co. It has been figured that the changes in the spinning frame alone, made by this company, had brought a profit of fifty million dollars (\$50,000,000) to the cloth producer and consumer in this country, and it is further said that the gains of the Northrop Loom will dwarf such figures into comparative insignificance.

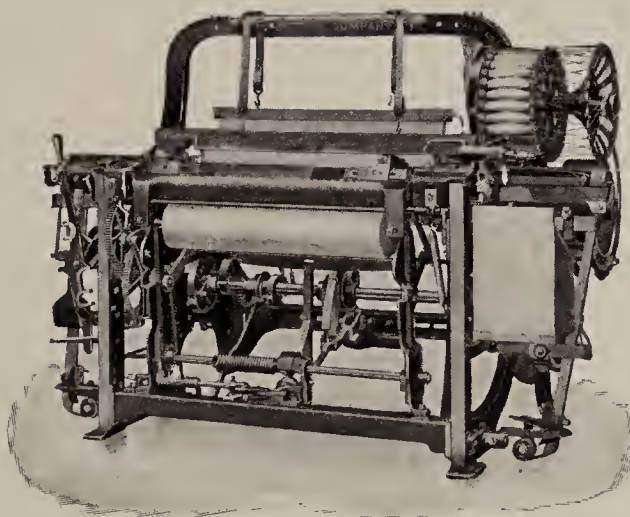
The Northrop Loom, is, in fact, the most important cotton machine improvement of the last fifty years, a machine which the Draper Co. sold last year to the number of sixteen thousand (16,000). While the advantage of the Northrop Loom over the common loom is generally known, it may be

Maine in 1896, was taken over from former Hopedale corporations and firms on January 1, 1897. At that time the Draper Co. absorbed George Draper & Sons, The Hopedale Machine Co., The Dutcher Temple Co., The Hopedale Machine Screw Co., also taking over the United States rights of the Northrop Loom Co. and the agency for the Sawyer Spindle Co. On the following year, the Draper Co. purchased the plant of the Hopedale Elastic Goods Co. for a necessary enlargement of business.

These great additions were followed immediately with a plan of alteration which would enable the company to double its output.

In tracing the development of this company from the year 1816, it is interesting to do so chronologically. In 1830 James Draper, a son of Ira, purchased the loom and temple business. Seven years later he formed partnership with E. D. Draper. In 1839 George Draper was granted an important patent in temple improvement.

E. D. Draper, in 1842, transferred his business to Hopedale, Mass., forming a partnership in 1852 with George Draper. In 1868 E. D. Draper retired in favor of William F. Draper, first son of George Draper. The second son, George A. Draper, was admitted to partnership in 1877, and the third son, Eben S. Draper, became a member of the firm of George Draper & Sons in 1880. George Draper died in 1887 and the same year, William F. Draper,



THE NORTHROP LOOM.



Jr., was admitted as a partner. George Otis Draper, the second son of William F. Draper, was admitted in 1889.

The various companies which were absorbed by the Draper Co. were organized as follows: Hopedale Machine Co., organized in 1856, and chartered in 1867; The Dutcher Temple Co. and Hopedale Furnace Co., chartered also in 1867; Hopedale Furnace Co. consolidated with the Hopedale Machine Co. in 1880; Hopedale Machine Screw Co., chartered in 1888; Northrop Loom Co., chartered in 1892.

The officers of the Draper Co. are: President, William F. Draper; Vice-President, Joseph B. Bancroft; Treasurer, George A. Draper; Agent, Eben S. Draper; Secretary, George Otis Draper; Purchasing Agent, E. D. Bancroft; Assistant Agent, Frank J. Dutcher and General Superintendent, Charles M. Day.

**SACO AND PETTEE MACHINE SHOPS.**—New England is noted for its machine shops, just as Pennsylvania is known the world over for the product of its rolling mills and armor plate works. It is a natural result of existing trade conditions, for no other section of the country can compare with the New England States in the number of cotton and woolen mills, dye houses, print works and kindred establishments, and the machine shop is the complement of the mills.

Among the larger concerns having a home in New England, which make a specialty of cotton machinery in its many branches, and similar mill work, the Saco and Pettee Machine Shops are recognized as among the leaders in this branch of manufacture. Their products are known in every mill center of this country, and have gained a well deserved reputation for general excellence.

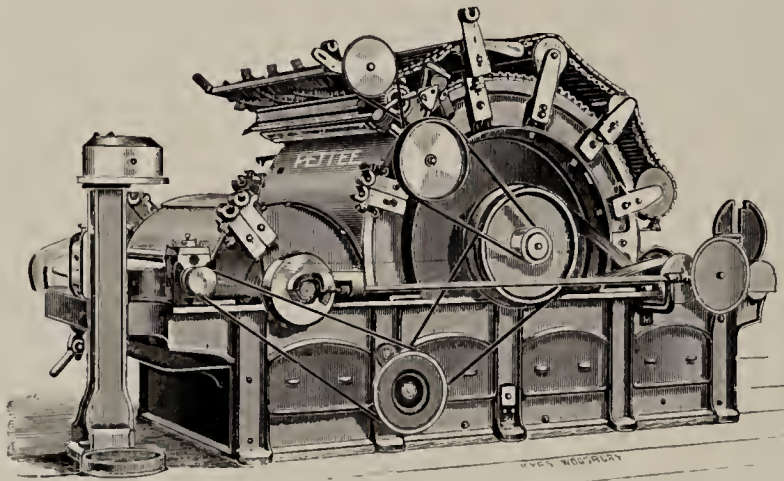
This firm is an old one, although it was not incorporated until 1897, when a general reorganization was effected. The original shop was first established in Newton Upper Falls, Massachusetts, in 1831, and its history has been one of constant growth through the legitimate channels of manufacture. The managers have taken advantage of the demands made upon them to constantly improve their machinery, and have accumulated a splendid equipment of special tools for the creation of the almost human machines which to-day turn the cotton of the South into the finished cloth which has done so much to make New England the prosperous section of the country it is to-day.

But the original shop at Newton Upper Falls has long since been outgrown, and the extensive plant which has superseded it is typical of the enterprise and business-like methods of the Massachusetts manufacturer. This is not the company's only establishment, however, for it also has another plant at Biddeford, Maine, which is devoted to the same general line of machine construction.

The members of the firm are men with reputation for ability, and for a comprehensive knowledge of this most important branch of machinery building. Henry S. Shaw is President, R. P. Snelling, Treasurer and F. J. Hale, General Agent, for the corporation.

The company is not handicapped by insufficient resources, either of plant or of capital, for its capitalization amounts to \$800,000. Its workshops are in close proximity to direct lines of transportation to the great manufacturing centers, and, when necessary, orders can be rushed out on very short notice. On the pay rolls of the concern are the names of 2,000 employees, in itself an indication of the vast output of the concern.

The shops of the concern are divided into a number of different departments, each under the supervision of skilled mechanics, and the output of this company has a deserved reputation for good workmanship, high speed and effectiveness in meeting the requirements of mill owners who desire economy of operation as well as the maximum of



A PRODUCT OF THE SACO & PETTEE MACHINE SHOPS.

output.

The enormous growth of the Saco and Pettee Machine Shops from the little workshop first opened more than seventy years ago, is in itself the best recommendation any manufacturing concern could desire.

**WHITIN MACHINE WORKS.**—New England has from the first introduction of mill machinery into the United States been noted as a cotton manufacturing centre, and with the development of textile working has come about the manufacturing of all classes of textile machinery. The machine shops of the New England States, and particularly those of Rhode Island and Massachusetts have gained a worldwide reputation for high-class, speedy, economical and labor-saving mill machinery of every description, and many of the modern patented appliances for the manufacture of cotton goods were the product of New England brain and New England machinists.



The development and radical improvement of cotton machinery during the past seventy-five years has been astounding, and yet the growth has been brought about naturally. First, one appliance has become obsolete and then another; one loom or spinning frame has been discarded because some ingenious inventor has found a simpler method of doing the work, and at the same time has been able to reduce the expense of operation and largely increase the output or the quality of the product. The making of such machinery has been a prosperous and constantly increasing branch of industry in Massachusetts, and a number of firms have grown up with the cotton spinning trade from infant industries to writable industrial giants.

Such a concern is the Whitin Machine Works of Whitinsville, Mass. Whitinsville is a village embraced within the limits of the town of Northbridge, and has been celebrated for years as a center of the mill machinery manufacturing business. The Whitin Machine Works were established in 1830 on a small scale, but such was the quality of their output, and such the firm's reputation for honest dealing, conservative methods and reliable machines, that the works have been running for seventy-two years. But, it has not been a lifetime of mere ordinary manufacturing routine.

With the spread of cotton manufacturing into the mill-stream valleys of the New England States, and the establishment of the hundreds of little hamlets of operatives' houses about the huge brick and stone factories of the cotton industry, a constantly increasing demand has been made upon the mechanical resources of the Whitin Machine Works, and year by year their output of improved and standard machinery for this branch of textile manufacture has increased.

To-day the firm consists of Messrs. C. M. Whitin, C. A. Taft, W. L. Taft, C. W. Lasell, J. M. Lasell, all men of the highest standing in the commercial world, and the firm has a rating, second to none, among manufacturers of this branch of industrial machinery. The original work shops have long since been outgrown, and additions have been made when necessary to meet the demands for additional floor space for the improved drills, lathes, milling machines and other tools used in their modern and splendidly equipped shops.

The number of employees has also increased in proportions to the demands of the business, until to-day a small army of 2,400 men are engaged in the several departments of the firm's work shops in the manufacture of cotton machinery exclusively.

The Whitin Works make an immense variety of textile machines and appliances. To the average citizen it will come as a surprise that in the list of

cotton machines manufactured by this one firm alone, standard machinery for which there is always a demand, there are cards, combing machinery, railway heads, drawing frames, spinning frames, spoolers, twistors, reels, long chain quilling machines and looms, and that under each of these general divisions there are many different styles. As in many another branch of machine work, one machine may have several improved forms, covered, perhaps, by special patents, and yet all in regular daily use. Hence it will be seen that a firm to successfully prosecute such a business as that of supplying machinery to cotton mills must be prepared not only to turn out new machines in a hurry when wanted, but must carry in stock an immense number of molds for casting, and finished parts for repair work. The Whitin Machine Works with their immense resources in the way of men, tools and plant are in a position to meet any or all requirements that may be made upon them, for one firm cannot remain in the same line of manufacture for more than seventy years without accumulating a most valuable capital of experience, and a knowledge of the intricacies of mill machinery not to be gained in any other manner.

Such a well-deserved reputation have the Whitin Works, and it is a valuable asset which the members of the firm do not intend to cheapen in any way.

The company is incorporated and has a capital of \$600,000.

Within the last decade a new field for cotton manufacture has been developed in the Southern States. It has been backed largely by Northern capital, and the superintendents and men in charge have been in large measure from the North. Into this new field the Whitin Works have successfully introduced large quantities of their machinery, much of which was built especially to meet the requirements of the different conditions existing in the textile industry of the South. To-day, this branch of their business is a most important one, and in addition to their offices in New England they have agents at Charlotte, N. C., in the heart of the new manufacturing field, and at Atlanta, Ga.

A large addition has been made to the shops of the concern within a few months, new machinery has been placed in position, and with the constantly increasing business along conservative lines the Whitin Machine Works cannot but live up to their reputation as builders of standard cotton machinery for seventy-two years.

WHITINSVILLE SPINNING RING CO.—In cotton manufacture much depends upon the perfect quality and action of machine and the small component



parts of machines. Spinning and twister rings, for instance, have a very important function to perform in the manufacture of cotton yarn. For twenty-nine years the Whitinsville Spinning Ring Co. has made a specialty of the manufacture of spinning and twister rings. Tools patented by this company have revolutionized the ring business, and have been adopted by the leading makers in the United States and England. The patent metallic burnish, used exclusively by this company, is to the spinning ring what the ball-bearing is to the bicycle, and their double burnished ribbed ring is said to be the lightest running ring yet produced.

Dirty travelers, travelers loaded with lint, are a prolific source of uneven yarn. The remedy for this defect is the United States Standard Travelers Cleaner, which is another important product of this company. It cleans the traveler automatically, keeping it free from lint, thus relieves the yarn from undue strain, and the threads retain the elasticity and evenness which is so essential to good weaving. This company manufactures at its factory in Whitinsville, Mass., every variety of spinning and twister rings, besides the United States Standard Traveler Cleaner, and it also makes a patent steel plate traveler cup. The company employs from thirty-five to forty-five men.

STODDARD, HASERICK, RICHARDS & CO.,  
LONDON AND BRADFORD, ENG.,  
BOSTON, MASS.

FOREIGN BANKERS  
AND IMPORTERS

OF TEXTILE MACHINERY,  
COLONIAL, ENGLISH AND CARPET WOOLS,  
EGYPTIAN COTTON, ETC.





# The Dry Goods Trade of Boston and New England is naturally among the first Industries.

THE JOBBING HOUSES OF THE BAY STATE CAPITAL SUPPLY THE GREAT ESTABLISHMENTS OF THE COUNTRY—NEWLY BORN CENTRES IN THE WEST, AND SOUTH, CANNOT SWERVE THE SOLIDITY OF THE MOTHER CITY.



**B**OSTON has been noted for many decades as the great dry goods emporium of New England. Although many other distributing centres have arisen in the South and West, and this city is no longer supreme in this respect, it still holds a very important position as a dry goods jobbing centre, and goods are to-day sent from here to many points in the far West, even New York buying many goods from the Hub.

This is the heart of the great mill district, and local jobbers are able to get goods quickly and at first hand. The increased use of domestic goods and the lesser consumption of foreign products gives the jobbing and commission houses of this city an excellent field in which to work. With the development of the textile industries of New England, the goodly number of high-standing jobbing houses in Boston have been able to increase their business and keep abreast of the times. There are dry goods jobbing houses in nearly every city of any size in New England, but those of Boston are far in the lead.

## Boston's Business Growing Despite Competition.

One of the great and distinctively modern factors in the business world to-day is the jobbing house whose province it is to buy goods from wholesalers, importers and manufacturers and distribute to the retailers. This form of industry has grown to

enormous proportions within recent years, and is represented in Boston by several large houses.

It is difficult to get at figures descriptive of the dry goods business, but it is generally agreed that in spite of the development of outside jobbing centres the transactions of Boston merchants, which a quarter of a century ago were calculated in thousands, have grown into many millions. New England is, of course, the great manufacturing centre for many lines of dry goods. This city is the natural distributing point. At least one house, which deals in fancy dry-goods and notions, is the largest in its line in the country.

In dry goods the Boston jobbers have developed fields which have surprised them, probably, as they undoubtedly have their neighbors. They are not relics of a time when the West had to look to the East for all of its comforts and necessities; they are the reward of high character and reputation and of fair dealing in the best of goods. Nearly every house in the city has a New York branch doing an excellent business and more than one New York wholesale dry goods establishment is a regular customer of Boston concerns, sending buyers here at stated periods.

The same is true with regard to the relations between Boston and more distant or smaller dry goods centres. The concern referred to as the largest of its kind in the country sends its salesmen to California with results which become more and more satisfactory. Others supply trade as widely separ-



ated as Texas and Minnesota, and the territory between here and the Mississippi is largely shared in by Boston.

Curiously enough, as it would seem at first blush, it is in the immediate vicinity of cities posing as dry goods centres that these Bostonians find many customers. The simplest explanation is again in the quality of what they offer. Their advantage seems to be not alone in imported goods, but in domestic products as well. Judgment, taste and conservatism have no doubt been the foundation stones on which they have built so substantially.

The situation is summed up in the profits, and the profits increase steadily and comfortably.

Into the business of dry goods jobbing as into nearly all departments of industry many and surprising changes have come during the last quarter of the nineteenth century. These changes are principally in the amount and variety of goods which the trade to-day demands, and which the jobbers are perforce obliged to handle. Dry goods jobbing twenty-five years ago was a comparatively simple affair and bore little resemblance to the vast and complex business which it is to-day. Even in the large centres like Boston the business was confined to very small quarters, and goods which to-day require hundreds of square feet for their display were easily shown off in a small corner of an ordinary room, probably not occupying more than a dozen square feet. Jobbing houses of the olden time were not regarded as of very great importance, and the biggest of them were apt to be found in two or three rooms on some upper floor in a building located on some unimportant street.

To these paces the retailers, who were in themselves of no great magnitude, came about twice a

year and made their essentially modest purchases. Several of the biggest dry goods jobbing houses in New England, and located in Boston, began in this small way and through industry, perseverance, foresight and wise business methods have been enabled to meet the requirements of a gradually unfolding and widening trade, and to build up great establishments which are models of their kind.

Another great change which has been wrought in the dry goods jobbing business is in the kinds of

goods handled. Owing to the development and perfecting of American manufacturing many goods which were formerly supplied exclusively by the foreign market and were imported in great quantities, are now supplied entirely by American manufacturers. A good example of this is found in hosiery, which a few years ago was imported exclusively. Now the finest grades of stockings are made in American mills, and there is almost no demand whatever for foreign goods in this line, which are regarded as in every way inferior to the home product. Not only in quality and texture have American manufacturers been able to improve upon foreign-made hose, but the shapes and designs of American stockings are everywhere conceded to be vastly superior.

Another line of dry goods which the jobbers have almost entirely

ceased importing is knit underwear. Great mills for the manufacture of underwear have everywhere sprung up in the United States, particularly in the New England States, and goods of the finest texture, shape and quality are now turned out to the value of millions of dollars annually. Formerly underwear was imported, and as a consequence exorbitant prices had to be charged for even the ordinary grades. One of the members of one of the largest jobbing houses in Boston said recently:



ALGONQUIN CLUB.

*This is one of the leading business men's clubs in the City, and its membership includes bankers, brokers, managers and lawyers. It was organized in 1885, and now has about six hundred active members.*



"When our representative made his last trip to Europe he looked about to see if he could not find some desirable underwear, and, meeting with no success, bought nothing in that line. When he returned he said that he was fully convinced that American-made underwear is in every way superior to the foreign article. We now handle nothing but the home product."

Another industry which has brought about changes in the jobbing houses is the manufacture of corsets. These goods, and an inferior article at that, were formerly imported. Whereas of old only the cheapest grades of foreign corsets could profitably be imported for the American market, now all is changed, and the domestic product has not only driven the cheap foreign article from the market, but is also a formidable rival of the finer quality of French goods. From all hand-work to almost no hand-work is the record of advance along the line of manufacture. From the woven corset, often devoid of shape, to the present strip corset, possessing all the comeliness of a garment fitted to living models, is the advance in matters of form. Nowadays extra attention is paid to the quality of material, instead of spending money for surface decorations.

Besides the American goods which have entirely usurped the foreign product there are many lines the ordinary grades of which are now made in this country, and only the finer grades are imported. The increase of the number of American goods now in demand has been productive of several advantages to the jobbers. The number of high-salaried representatives which houses were formerly obliged to send abroad to purchase goods has been lessened; American goods, having to pass through a fewer hands, yield larger margins and are more easily obtained for distribution; as a result the jobbers, in spite of ever-increasing competition, have found profits commensurate with their business judgment and energy, and at the same time have built up their business to meet the demands of the age.

It is not to be understood that the importation of dry goods has ceased. There are many goods which Americans have either not yet learned to produce or are impossible, for climatic reasons or other, of production in this country. For instance, linens are woven exclusively abroad. Laces, handkerchiefs and Hamburg embroideries are all of foreign importation. The manufacture of ladies' shirt-waists is exclusively an American industry, and has been developed to enormous proportions, to the advantage of the jobbers, late years.

A visit to a great dry goods jobbing house in Boston is an interesting experience for anyone. The departments are divided according to the variety of goods. Laces and Hamburgs are arranged

in snowy piles on tables covering an entire floor; hosiery and underwear are displayed for the convenience of the buyer in such quantities as to excite the wonderment of the uninitiated; shirt-waists, wrappers, ribbons and a thousand and one articles that go to stock the big retail dry goods store are to be seen, each in a department by itself, in bulk sufficient to stock a dozen great retail stores at a moment's notice.

While Boston is the centre of dry goods jobbing in New England it is not the only city where this line of business is carried on. There are small jobbing houses in nearly all the cities of any importance whatever in the East, but these smaller houses do not cater to the great department stores even in their own cities. They chiefly supply the retail dealers in dry goods who have small stores in country towns. The big houses in Boston do business in nearly all the great cities in the United States and in some of the northern provinces. But the cities of New England like Worcester, Springfield, Manchester, Hartford and New Haven are the ones that look practically exclusively to Boston for supplies.

AMORY BROWNE & Co. are one of the famous dry goods commission houses established in the early half of the nineteenth century, and stand to-day in the first rank of the great dry goods commission firms of New England; in fact, of the country. Their Boston offices are located at 48 Franklin street, Boston. The original house was founded by Upham, Tucker & Co., in 1830, and it grew, until to-day, under the present name, they do a world's trade. Among the mills for which they are selling agents are: The Nashua Mills and Jackson Co. of Nashua, N. H.; The Lancaster Mills, Clinton, Mass.; The Atlantic Mills of Lawrence; The Indian Head Mills of Cordova, Ala., and Hill Manufacturing Co., Lewiston, Me. They have offices in Boston, New York and Philadelphia. The Nashua Manufacturing Co. are among the largest producers of napped goods in America; their cotton or canton flannels and Nashua blankets are noted everywhere. "Lancaster" ginghams are famous, The Lancaster Mills being the oldest gingham factory in this country. "Indian Heads" brand is known for the excellence of the cloth, which is made by the Jackson Co. and The Indian Head Mills of Alabama, though a comparatively new company has already commended itself to the trade by the superior construction and finish of its standard cotton sheeting and drills.

BLISS, FABYAN & Co.—Among the largest and most prominent dry goods commission houses in the New England States, and one which for many years has been in the van of the dry goods commis-



sion business of Boston, is the firm of Bliss, Fabyan & Co. The Boston offices are at 100 Summer street in the very heart of the wholesale district, and readily accessible from either the North or South Terminal Station, or the ferries and steamboat docks. With its branches at 32 Thomas street, New York City, in the Medmah Building, Chicago, and in Philadelphia, this company is in a position to draw upon the entire dry goods manufacturing business of the country, and buying as it does in quantity, and handling only standard goods, it

stands in very close relations with the largest dry goods purchasing and manufacturing concerns of the United States. Its offices and salesrooms in this city are exceptionally well adapted for the business demands made upon their facilities, and a large force of efficient and gentlemanly assistants are numbered upon the pay-roll of the firm. Included within the clientele of Bliss, Fabyan & Co. are some of the largest dry goods houses of the city, the state and of New England. This firm carried an exceptionally large and varied assortment of goods, many of them of special weave, and has the exclusive agency for New England for a number of leading manufacturers.

CATLIN & Co.—The dry goods commission house of Catlin & Co. is one of the oldest and best known in the country. It is a firm which has the highest standing in the mercantile world, and its reputation as a successful business concern is of the best. They have offices in Boston, New York and Philadelphia. They sell the products of a number of the largest cotton manufacturing companies in the country and have the sole agency for the hose and belting manufactured by the United States Cotton

Duck Corporation. Catlin & Co. are also agents for many cotton yarn mills situated in various parts of the country.

Among the concerns whose products they handle are: the Chicopee Manufacturing Co. of Chicopee, Mass., makers of cotton, flannels and blankets for home trade and export; the Appleton Co. of Lowell, Mass., manufacturers of colored flannels and sheetings for home and export trade; the Victory Mills of New York State, manufacturers of silesias and linings. In addition Catlin & Co. represent the Henrietta

Mills of North Carolina, the Florence Mills of North Carolina and the American Spinning Co. of Greenville, South Carolina.

During the year an immense amount of business is handled by this concern. The members of the firm are well versed in all manufacturing matters and have the confidence of the trade.

The Boston office of Catlin & Co. is at 67 Channcey street and the New York office at 345 Broadway.

CONVERSE, STANTON & Co.—A bus-

iness firm long identified as a leader among dry goods commission merchants and agents for mills, is Converse, Stanton & Co., a firm which is made up of three men who have gained high reputations in business—Edmund W. Converse, Andrew B. Cobb and Michael E. Bannin. The original company was known as Converse, Stanton & Cullen, also Converse, Stanton & Davis, and after having been in business for thirty years was succeeded by Converse, Stanton & Co., the present concern, which was established in 1898. It has offices at No. 62 Franklin street, Boston, at No. 85 Worth street, New York, at No. 221 Fifth Ave., Chicago and at No. 618 Chestnut street, Philadelphia.

Converse, Stanton & Co. are agents for mills,



SOMERSET CLUB.

*This organization was gathered together in 1852, and is an outgrowth of the Tremont, one of the earliest of Boston's social clubs. All the conveniences and luxuries which obtain in a high class club-house of modern days are to be found there.*



manufacturing woollens, cottons and underwear, as follows: Cotton,—Exeter Manufacturing Co., Central Mills Co., Pocasset Manufacturing Co., Lonsdale Co., Wachusett Mills—Underwear,—Broadalbin Knitting Co., Gem Knitting Co., Index Knitting Mills, John Warner's Sons, Regal Textile Co., MacFarlan & Co., Nelson Knitting Co., Oak Knitting Co., Thomas F. Byrne, Athens Knitting Co.—Woolen,—Gay Bros. Co., Dundee Woolen Co., Carleton Mills Co., Chapel Mills Manufacturing Co., Valley Woolen Mills, Sangerville Woolen Co., P. M. Pfaffman, Dens Woolen Co., T. F. Mullens & Co., B. W. Green Sterling Mills Co., I. W. Smith, Caladonia Mills Co., H. C. Jones Co., Samuel Riddle's Sons, Angora Mills, Saxondale Worsted Mills and Heritage & Hirst.

JOY, LANGDON & Co.—Among the number of notable dry goods commission firms, that are prominent in the New England States with headquarters at Boston, is the popular house of Joy, Langdon & Co. This firm was originally established under its present name in the year 1872, by the late John D. W. Joy, Woodbury Langdon and Charles B. Gookin, and so continued until the death of John D. W. Joy in 1898 when it was organized as it is at present, the members now being Woodbury Langdon, Charles B. Gookin, Franklin L. Joy, Eustis L. Hopkins and Arthur E. Mason. The last two named members are located in New York City.

The firm of Joy, Langdon & Co. to-day stands in the front rank of New England's dry goods commission agents and represent the following well-known mills and manufacturing companies: Hamilton Manufacturing Co. of Lowell, Hamilton Print Works of Lowell, Hamilton Woolen Co. of Southbridge, Mass., Amesbury Mills of Amesbury, Mass., and Newmarket Manufacturing Co. of Newmarket, N. H. The offices are at 99 Chauncy street, Boston, 108 Worth street, New York, and also in Philadelphia, St. Louis and Chicago.

THE NEVINS CO.—As the center to which New England dry goods merchants turn when purchasing their stocks of goods is Boston, so it follows that within the past twenty-five years a number of enterprising dry goods commission houses have sprung up in Boston, and have firmly established themselves. Among the prominent houses is that of the Nevins Co., which was established in 1898. The firm is incorporated, with a capital of \$200,000, and its officers are: Moses T. Stevens, President; John R. Trull, Vice-President; Henry S. Shaw, Treasurer; and Lawrence Mayo, Clerk. The Nevins Co., when incorporated, succeeded to the firmly established business of the old firm of Nevins & Co., and it has progressed rapidly yet surely to its present most reputable position. To-day the firm occupies

offices at 78 Chauncey street, in the dry goods district, so-called, and has fourteen employees upon its rolls. In addition to its Boston establishment it has a branch at 212 Church street, New York City, and is therefore in touch with the dry goods trade of the whole United States, and with the importers through the ports of both New York and Boston. The firm is conservative in its methods, and yet there is no touch of old foginess about its business dealings. Its policy has gained the firm friends, and its clientele of customers is rapidly extending.

THE WALKER-STETSON CO.—The whole of the large building, 157 Essex street, at the corner of Lincoln street, Boston, is scarcely large enough to accommodate the constantly growing business of The Walker-Stetson Co., dealers in fancy dry goods and makers of the Domestic Wrapper. The concern is one of Boston's standard mercantile establishments.

The house was established January 1, 1887, as Walker, Stetson & Sawyer. Two years later it was incorporated under its present style, and it now includes James H. Stetson, Alfred H. Jones, Frederick L. Walker, Charles D. Mather and William E. Worcester in its membership. It is a Massachusetts corporation—which is universally recognized as a high business recommendation—with \$200,000 capital, and has 125 employees.

WELLINGTON, SEARS & Co.—Wellington, Sears & Co. are among the older firms, identified with the dry goods commission business of Boston. They date back by direct predecessors to 1850, and to-day represent the following mills: Lanett Cotton Mills, West Point Manufacturing Company and Riverdale Cotton Mills, all of West Point, Ga.; the Columbus Cotton Mills of Columbus, Ga.; the Brookside Mills of Knoxville, Tenn.; the Warwick Mills, Centreville, R. I., and New England Bunting Company of Lowell, Mass. Wellington, Sears & Co. are the sole selling agents for these manufactories, including especially cotton duck, cotton fabrics generally and all-wool bunting. The Boston offices are at 202 Devonshire street, 58-60 Worth street, New York, and 1411 Chemical Building, St. Louis. This popular firm that has made a niche in the history of Massachusetts during the last half of the last century, and, in its hardy and sturdy condition at present, promises to do so for the first, and even the last of the present young century. Among the members of the firm are: William H. Wellington of Boston; Horace S. Sears of Weston and Edward P. Boynton of Medford. They constitute a firm, not an incorporated company, and employ more than two score of employees. The fact that it is necessary for them to establish and support an office in St. Louis, speaks for the popularity of the house and their goods in the West.



FAULKNER, PAGE & CO.,  
 DRY GOODS COMMISSION,

BOSTON OFFICES: NEW YORK OFFICES:  
 91 BEDFORD STREET. 58-60 WORTH STREET.

SELLING AGENTS FOR:

WHITTENTON M'F'G CO.	J. C. PARKER CO.
SAMUEL A. CROZER & SON.	CHARLES M. DAVIS & CO.
OAKLAND MILLS.	ROCHDALE MILLS.
ELIZABETH POOLE MILLS.	WILTON WOOLEN CO.
MISSISSIPPI MILLS.	C. J. AMIDON & SON.
LAUREL COTTON MILLS.	THOMAS KENT M'F'G CO.
FAULKNER & COLONY M'F'G CO.	BOUND BROOK WOOLEN MILLS.
FAULKNER M'F'G CO.	E. KENYON & SON.
CHESHIRE MILLS.	NASONVILLE WOOLEN CO.
DUSTIN ISLAND WOOLEN MILLS.	PLAINFIELD WOOLEN CO.
ANDREW HOWARTH & SON.	F. SCOTT & SON.

HARDING, WHITMAN & CO.,

DRY GOODS COMMISSION,

78 CHAUNCY ST.,

BOSTON, MASS.

C. B. FILLEBROWN & CO.,  
 68 ESSEX ST., BOSTON,

SELLING AGENTS,  
 DRY GOODS COMMISSION.

FACTORY:  
 WOONSOCKET, R. I.

LAWRENCE & CO.,  
 DRY GOODS COMMISSION,  
 68 CHAUNCY STREET,  
 BOSTON, MASS.

SELLING AGENTS FOR:

THE PACIFIC MILLS.	COHECO M'F'G CO.
MERRIMACK M'F'G CO.	SALMON FALLS M'F'G CO.
BOSTON M'F'G CO.	IPSWICH MILLS.
GILMANTON MILLS.	PARKER MILLS.
	HARGRAVE MILLS.



MACKINTOSH, TAFT & MCKENNEY,

COMMISSION MERCHANTS,  
WOOLEN,

56 FRANKLIN STREET,  
BOSTON,

59 LEONARD STREET,  
NEW YORK.

SMITH, HOGG & CO.

MASSACHUSETTS COTTON MILLS,  
BOOTT COTTON MILLS,  
EVERETT MILLS,  
YORK MANUFACTURING CO.,  
TREMONT AND SUFFOLK MILLS,  
MASSACHUSETTS MILLS IN GEORGIA.

144 ESSEX STREET,  
BOSTON.

115-117 WORTH STREET,  
NEW YORK.

PARKER, WILDER & CO.,  
BOSTON & NEW YORK,

DRY GOODS COMMISSION,  
4 WINTHROP SQUARE,  
BOSTON, MASS.

SELLING AGENTS FOR:

TALBOT MILLS, NORTH BILLERICA, MASS.	CLARENDON MILLS, WEST BOYLESTON, MASS.
CONCORD M'F'G CO., CONCORD, MASS.	GONIC M'F'G CO., GONIC, N. H.
BELVIDIRE, W. M. CO., LOWELL, MASS.	CHARLES A. STEVENS CO., WARE, MASS.
MONADONOCK MILLS, CLAREMONT, MASS.	PHOENIX FACTORY, UNION M'F'G CO., PETERSBOROUGH, N. H.
NAUMKEAG S. C. CO., SALEM, MASS.	STIRLING MILLS, LOWELL, MASS.
COHECO W. M. CO., EAST ROCHESTER, N. H.	YANTIC MILLS, YANTIC, CONN.
G. F. SILBY, NORTH MONTPELIER, VT.	

## Clothing and Woolens.

TWO WHOLESALE LINES IN WHICH BOSTON  
STANDS HIGH—MERCHANTS BY  
HERITAGE.

Boston is the oldest mercantile centre in the country. While traders with the Indians may have established themselves elsewhere at an earlier date than they did here, business, as a man of the present day recognizes it, had its beginning hereabouts. As the needs of the person were naturally the first to demand attention, clothing and the materials of which it is made were prominent in the city's early business interests.

The old-time Boston merchant was a distinct type and his modern successor, who is in many cases his blood descendant, stands apart in many respects from others of his kind. Principles laid down in time when there was more leisure for consideration, a judgment cultivated in the days when most things were imported and the great port of the country was the port of Boston, ideals and integrity inbred with the Puritan blood, have all been inheritances the value of which has never been underestimated and the preservation of which has been regarded as a duty and a business necessity.



It is, indeed, upon these foundations that Boston's business existence stands. The jobber of to-day has taken the place of the merchant of the past, carrying on much the same kind of an enterprise and doing it in much the same way as his predecessor. Every advance in social conditions benefits the jobbers in necessities which have possibilities of development toward luxuries. As a consequence the clothing business feels an uplift every year.

Boston clothing jobbers have their field under constant and careful cultivation. Their nearness to the great mills and their shipping facilities enable them to reach and hold certain territory by reason of conditions of cost which do not apply to less favored places. It is well recognized that the sweatshops are not as great an evil in Boston as in many large cities and the clothing distributed from here is regarded as clean and of good workmanship and material, well above the average, indeed, in most respects.

Hand in hand with the clothing business goes the trade in woolens. It is conducted by the same stamp of men; often by the same individuals. The numerous advantages of the city as a distributing point—its splendid railroad and ocean shipping and importing facilities, its high financial rank, its nearness to the great mills, which are the producers of so much of the stock used in this country now—have attracted this particular line of business and made a profitable home for it.

**MACULLAR, PARKER CO.**—As manufacturers and retailers of clothing, as well as importers, and jobbers of woolen goods, and dealers in furnishing goods, Macullar, Parker Co. are among the first and foremost concerns of the New England States. The company was established in the year of the gold fever—1849—and was incorporated in 1895, with a capitalization of \$400,000, under the State law of

Massachusetts. The directors of the company are Charles W. Parker, James S. Wesson, Hatherly Foster, Ross Parker and Herman Parker. Their goods are known for their fine wearing quality, style and finish. Nearly 600 operatives are employed in the manufacture and sale of the product of this old house. It is generally known and taken as a fact, that the man who can turn down his coat collar and show the Macullar, Parker Co. label, is "well dressed." The various stores of the Macullar, Parker Co. are located as follows: Men and Boys' Clothing and Furnishing Goods Departments, 400 Washington street, Boston, Mass., Custom Clothing Department, 398 Washington street, Boston, Mass.

Wholesale Cloth Department, 81 Howley street, Boston, Mass.

Men and Boys ready made and Custom Clothing Departments, 166 Westminster street, Providence, R. I.

Foreign Purchasing Agency, 30 Golden Square, W. London.

**A. SHUMAN & Co.** is the largest exclusive manufacturing retail garment house for boys, women and children in New England. The house was established in 1859, and the "Shuman Corner"



A. SHUMAN & CO.

ner" at Washington and Summer streets is the heart of the retail section of Boston. It is passed by almost every line of cars in the city, is five minutes' walk from South Terminal Station, and in the vicinity of all hotels, theatres, etc.

A large portion of the great success of this firm is its entire reliability as dealers in woolen fabrics, the numerous details being directly under the eyes of the management, both as regards manufacture and retailing. Every piece of cloth is subjected to the most severe tests, so that no doubt remains as to its genuineness. A. Shuman & Co. in connection with their retail interests are also among the largest jobbers and wholesalers of boys' and men's clothing in the country. The firm



members are A. Shuman, Samuel Shuman, Edwin A. and Sidney E. Shuman. They employ 600 people.

## Corset Manufacture.

AN INDUSTRY WHICH HAS BEEN PARTICULARLY DEVELOPED IN NEW ENGLAND  
ALONG IDEAL LINES.

The day when the American woman felt that anything for her personal wear must, if it were to be good, be imported, is long since past. In the wonderful progress of American manufactures her needs have been among the first considered, and now that she sets the fashion for the rest of the world—as the rest of the world, praising her good taste and judgment, is beginning to admit she does—the special industries which supply her wants are

products, cannot be surpassed in excellence. Indeed, there are probably few other manufactures of a similar nature which have been so carefully considered in their development and in which so much attention has been given to cleanliness and healthful surroundings as the establishment and rise of American corset making show. The work is done largely by women, whose deftness and taste are almost necessary to attain the best results, and the conditions under which they labor in the great New England factories are an object lesson in themselves to Europeans.

The history of this particular business has been very notable. In the face of a predilection for imported goods based on what might almost be called a superstition of fashion, it has so far out-stripped



ROYAL WORCESTER CORSET CO., WORCESTER, MASS.

found already developed to a degree of perfection that centuries have hardly vouchsafed elsewhere. This is particularly true of corset making.

That the colonies which were born in hardship and austerity and brought up in Puritanical simplicity should become the home of this manufacture seems somewhat paradoxical, but such was the course of events. Some of the greatest corset-making concerns in the world are here, and from here are supplying the very foreign markets on which this country used to be dependent for their special line of goods. They have had a wonderful growth, and it has come to them through the skill shown in their workmanship and the quality of everything they used.

The conditions which obtain in a wholesome New England city, the superiority of employees who are well paid and well cared for and the readily recognized advantages of factories constructed with the utmost regard for sanitary perfection have done much to increase the popularity of American-made corsets, which, like other of our great country's

its foreign competitors that it has been utterly unable to keep up with the demand it has created, and its growth has been by leaps and bounds.

THE ROYAL WORCESTER CORSET CO. of Worcester, Mass., has grown by rapid stages through tireless business enterprise from the Worcester Skirt Co., which Mr. David Hale Fanning, President of the present corporation, established in 1861. The manufacture of corsets was added to its business in 1862. Eight years later the name of the concern became the Worcester Corset Co., and under that style it was incorporated in 1888. Last year it was re-incorporated as the Royal Worcester Corset Co., with a capital of \$400,000. Its factory for making corsets and waists, shown above, is one of the model manufacturing plants of the world. The conditions under which its thousand employees produce the goods which have become as famous abroad as they are at home are practically ideal. The growth of the business has been such that preparations for extensive additions to the building are under way.



# Boots and Shoes the Industry in which Massachusetts Leads the World— Still Advancing.

THE OUTPUT OF THE PRESENT TIME—MORE THAN FIVE TIMES THAT OF ANY  
OTHER STATE—THE RECENT INVASION OF FOREIGN MARKETS—A  
FOUNDATION WHICH ASSURES GREAT PROSPERITY  
FOR THE FUTURE.



**I**N the manufacture of boots and shoes Massachusetts has always been in the lead, the output in this State being at the present time more than five times that of any other State in the Union. Among other manufactures in Massachusetts the boot and shoe industry stands second and the proportion of its gains in recent years indicate that it will eventually stand first. The most satisfactory feature of the industry itself is the recent invasion of foreign markets. Massachusetts-made shoes are imported to nearly all the great countries in Europe, England having at last acknowledged the superiority in every particular of the American product. This is regarded as a great triumph for Massachusetts shoe manufacturers and opens up a field which practically has no limit and places the industry of boot and shoe making on a foundation which assures great prosperity for the future and a continued increase for an indefinite period of the amount of the product. All the distinctively boot and shoe manufacturing cities of the State have showed corresponding gains in the past ten years, while the last year was one of unusual gains.

## Business in which New England Leads Country.

It would appear that from the earliest days of the country to the present time the inhabitants of Massachusetts had been especially interested in seeing that mankind were well shod. So far as is known the first shoe factory in the world was established in

this State, and from the time that boots and shoes were first turned out by machinery to this day of marvelous production, the industry has stood first on the list of the nine great industries of the State, not counting all the various textile products. To-day Massachusetts is recognized throughout the United States as the boot and shoe centre of the country, and during the past two years has claimed the attention of foreign countries as well, particularly England and France.

It is probable that if the historian should turn his attention to the boot and shoe industry of the period previous to workshops and machinery he would still find the old Bay State in the lead. For many years after the settlement of the American colonies no attempt was made to manufacture boots and shoes for the market, footwear being imported from England and France. Hand-made shoes, and a clumsy product at that, were all our early ancestors could secure to guard against chilblains and frostbitten toes. In some of the larger localities there was a local shoemaker who was regarded as an important individual, standing well in the community, as he certainly had a right to. The smaller villages and hamlets were visited at stated intervals by a traveling cobbler, whose coming was always heralded as an event of great consequence. Having shod all the people of the countryside, he gathered up his kit and jogged on to the next village.

His business doubtless suffered after the building of the first shoe factory, which was located in Danvers, about twenty miles from Boston, not far from the historic house in which General Porter of Revolutionary War fame was born. As early as 1786 currying, cutting and shoemaking were begun in



the original factory at Danvers. This building is said to be still standing. There was at first a strong sentiment against machine-made shoes, and it may be said that this feeling did not die out for several generations. But as the quality of the manufac-

number of establishments, capital and output have all increased at a corresponding ratio. New York will probably stand second and New Hampshire third.

Turning to recent statistics of the boot and shoe industry of the State the following interesting



CONGRESS STREET, BOSTON.  
*Wholesale Leather, Shoe and Rubber Goods Trade.*

tured article improved the prejudice began to disappear and gradually new factories sprang up in different parts of the State.

In a recent statistical report of the industries of the State 673 boot and shoe establishments were considered. This figure does not include a great number of smaller houses. The last census report issued at Washington in 1890 showed that there were 1,057 establishments in Massachusetts, with an aggregate capital of \$44,567,702 and a production valued at \$116,387,900. This was vastly in the lead of any other State. New York State being second with 257 establishments, aggregate capital of \$11,950,891 and a production of \$23,661,204. The Government Industrial Census for New England for 1900 is not yet complete, but reports for four States. New Hampshire, Vermont, Rhode Island and Connecticut, have been issued and show an astonishing increase in the number of establishments and the amount of the output during the past ten years. The forthcoming report on the boot and shoe industry of Massachusetts will show this State to be even further in the lead than ten years ago, while the

figures are shown: Amount of capital invested, \$26,716,110; value of stock used, \$80,829,629, the year following the amount being stated at \$80,966,554, showing an increase in one year of \$136,875; value of goods made and work done first year, \$150,259,849; second year, \$152,333,435, increase in one year, \$2,073,586; number of persons of both sexes employed 59,288; total amount paid in wages in one year \$27,476,207.

Other interesting statistics are: Capital invested, \$26,716,110; average persons employed, 59,288; industry product per \$1,000 of capital \$1,805; industry product, average per employee, \$813.36; percentages of industry product devoted to profits and minor expenses, 43.02; the same paid in wages, 56.98. The above estimates are for one recent year on a basis of 673 establishments considered. The report for the year 1901 will show no decline in the amount of capital invested or the value of outputs, while the increase in all departments of the boot and shoe industry has been steady and of a healthy growth. The figures for 1901 will show up very satisfactorily beside those above quoted.



The country for many years looked to Boston very largely for its boots and shoes. The East still does so, and the establishment of a great distributing centre in the Middle West, while it has, of course, split the territory, has not circumscribed Boston's field to the extent which might be supposed by any means.

The different manner of reckoning business in different parts of the country makes it difficult to say positively that Boston is the chief boot and shoe jobbing centre of the United States, but that such is the fact seems to be in little doubt. It is in this vicinity that the majority of the "maker to wearer" brands of footwear are manufactured, too, but the extraordinary home market in New England helps to equalize the opportunities and prevent restriction.

The showing made by Boston in boot and shoe jobbing is little short of marvelous. Progress and growth, which are the general rule of the city, are decidedly in evidence. Boston has outstripped many other cities. In less than half a century there has been an increase of 25 per cent. in the houses engaged and of nearly 500 per cent. in the amount of business done in this one line of jobbing annually.

The growth has been healthy; it has been gradual and lasting; it continues, and there was never a brighter outlook. A comparison of authentic figures is interesting from every point of view. Below are set side by side the number of boot and shoe jobbers in Boston and the amount of their business in different years:

R. B. GROVER & Co.—A comparatively recent product in the shoe manufacturing industry, a product that has been fully justified by business demand, is what is known as the specialty shoe. One of the foremost of these is "The Emerson Shoe" which is manufactured by R. B. Grover & Co. at Brockton, Mass., a concern established in 1899. This company manufactures fine shoes for the retail trade, selling the product of the factory direct to the wearer, and to the wearer only, through its own channels. In nearly all the larger cities of the United States, Emerson Shoe Stores have been established and there are also two branch stores in London, England. R. B. Grover & Co. sell no goods either to retailer or jobber, direct or on commission, and it is said to be the only shoe manufacturing concern that disposes of all its product directly to the consumer. An essential part of the system is a uniformity in prices, shoes being sold at two prices only,—\$3.50 for Goodyear welt shoes; \$5.00 for hand-sewed shoes.

Five hundred employees are engaged in the manufacture of the Emerson shoes, the factory having a capacity of fifteen hundred pairs per day of welted

shoes. Thirty-four stores are being operated to dispose of this product.

The members of the firm of R. B. Grover & Co. are Robbins B. Grover, Charles O. Emerson and J. Frank Hill.

GEORGE E. KEITH Co.—The George E. Keith Co. was established as Green & Keith in 1874, George E. Keith in 1880, and incorporated under its present name in 1896. They manufacture men's, boys' and women's shoes, are capitalized for \$500,000, and employ 2,300 persons. Their three factories are located at Campello, Mass., and have a daily capacity of 10,000 pairs, and are now turning out 8,500 pairs per day. Their "Walk-over" and "Bilt-well" brands are particularly exported to foreign countries in large quantities. The members of the company are George E. Keith, Myron L. Keith, S. Corey Keith and Oscar L. Davis. They own and operate their own wooden box factory, having the same connected by a spur track of the railroad.

Their immense factories are located directly on the line of the New York, New Haven and Hartford Railroad at Campello, on Evans street and Perkins avenue, making their facilities for shipping excellent. Two of the factories are used exclusively for welt work. Among the foreign countries which buy their "Walk-over" goods in very large quantities, are particularly England, Germany and Australia. The company operates a number of stores in the large cities, and it is safe to say, as is very well known that the George E. Keith shoe holds its own with the sales of any shoe in the country.

PRESTON B. KEITH SHOE Co.—The name of Keith has long been prominent in the shoe industry of the United States, and for thirty years Preston B. Keith has been one of the foremost figures in the great shoe centre of the world, namely Brockton, Mass. In 1871 he established the shoe manufactory which was incorporated five years ago under the name of the Preston B. Keith Shoe Co., and from its first day the history of the business has been a story of growth—the healthy and substantial growth which comes from enterprise and honesty and a progressive spirit.

In its seventh year (1878) the concern was obliged to build a new factory to keep up with its trade and in 1880 and 1881 extensive additions to the plant were made. Three years ago further extension was imperative and the Keith factory was rebuilt and added to, so that it took the form of a hollow square. The establishment is now the striking features of Rutland Square, Campello, Brockton.

The Preston B. Keith Shoe Co. makes only medium and fine grades of goods in Goodyear welts and McKey sewed. The capacity of its plant is



3,600 pairs of shoes a day and 700 persons are employed in making them. This product goes into an ever-broadening market.

With President Keith are associated as officers of the Corporation, Vice-President Rufus P. Keith and Secretary and Treasurer Chas. M. Park. The capitalization is \$100,000.

**THE LESTER-SHIRE MANUFACTURING CO.**—The largest shoe factory in the world is that of the Lester-Shire Manufacturing Co., which has practically created the village of its location, Lester-Shire, in Broome County, N. Y., two miles from Binghamton on the Susquehanna River. It has more than 2,000 employees, which gives it a daily capacity of 20,000 pairs of heavy pegged and standard sewed shoes and medium and high grade McKay sewed shoes. One of its specialties is shoes made from the celebrated French Kangaroo Kip, the tannage of which the Lester-Shire Manufacturing Co. controls exclusively.

The success of this concern is almost phenomenal. In its ten years of existence it has reached a point, where, in spite of its enormous facilities, which involve the investment of \$1,000,000, it has begun further extensions, and will, in October, open a new Goodyear factory with a daily capacity of 10,000 at Endicott, N. Y., six miles from its present plant. A sole leather tannery, the product of which will be used exclusively in the new factory, is also being built at Endicott.

Like all great enterprises the Lester-Shire Manufacturing Co. and its growth and prosperity, are the work of farseeing, well-trained men. There are but two owners of the concern, H. B. Endicott and George F. Johnson. It is hardly necessary to say anything further about men who can point to such an establishment as theirs.

**M. A. PACKARD CO.**—The shoe manufacturing industry is one that for many years has made its centre, and practically its entire field of operations within the New England States. The industry grew most rapidly in Massachusetts, and during the past twenty years, which have been years of the most considerable development, Massachusetts shoe cities have shown the greatest progress. In 1880, when shoe manufacturing began to develop new ideas and adopt new methods, in accordance with the trend of modern demands, the M. A. Packard Co., a pioneer company in producing men's fine shoes was established in Brockton, Mass., with a capital of \$100,000.

This company furnishes a good example of the recent development of the shoe manufacturing industry. At the present time, the M. A. Packard Co. manufactures about 2,400 pairs of shoes each

day, and employs 550 men. The product of the company's factory consists of fine shoes, nearly all of them being Goodyear welts, and the value of this product, as billed from the factory, represents in the course of a year about \$1,250,000. These goods are sold in every state and territory of this country, and also in Canada, British Columbia, Cuba, England, Australia, South Africa and India.

The officers of the company are: President, Moses A. Packard; Vice-President, Oliver M. Fisher; Treasurer, John S. Kent.

**THE THOMAS G. PLANT CO.**—A concern to be measured by millions is the Thomas G. Plant Co., manufacturers of ladies' shoes, who are best known for their "Queen Quality" brand. The running capacity of their factory at the corner of Centre and Bickford streets in the Roxbury district of Boston is upwards of three and one-half millions of pairs of shoes a year; their business in 1901 amounted to close to four millions of dollars, an increase of half a million over 1900; their capital is two and one-half millions, and the pay roll of their 2,000 employees foots up \$1,000,000 each twelve months.

The Thomas G. Plant Co.'s factory is a model establishment, built of brick, six stories high, with a spacious basement where is the 500-horse-power engine which operates all of the machinery and the electric lighting plant. It is well constructed, 439 feet long and fifty-five feet wide, and has all the most up-to-date sanitary and mechanical appliances.

Such a tremendous establishment doing such an enormous business is, of course, in the hands of men of progressiveness and of large ideas. The company was formed in 1891, and has at its head as President, Thomas G. Plant, with George H. Hutchinson as Vice-President, W. L. Ratcliffe as Treasurer and W. A. Mitchell as Secretary. The other directors are John MacNair, Junius Beebe, W. F. Plant, W. Y. McGaffee and George J. Carr.

**THE FRANK E. WHITE CO.**—For more than twenty years the Frank E. White Co., of Brockton, Mass., have been prominent as makers of men's medium-priced foot-wear. In that time they have brought their product into extensive use among the wholesalers of all the principal cities of the United States, and they were among the first American manufacturers to cultivate the European market, in which they have built up a flourishing trade.

During the last two or three years the White Co. have made special efforts in the direction of improving the quality as well as increasing the quantity of their output, and have concentrated their efforts upon a few lines. The resulting success has doubled their production, and further extension of their factory buildings has become necessary.



The head of the house, which was established in 1879, is Frank E. White, who has been prominent in the shoe world for many years. He has the financial management of the concern's affairs, while the manufacturing is in charge of Hervey Dunham, another man who is of long experience in this branch of the business, and is recognized as of particular skill and competence in it. One of the firm, Loring Q. White, the junior partner, is in charge of the sales department, which he has developed to a great success.

E. S. WOODBURY & Co.—This is an age of specialists, and the firm of E. S. Woodbury & Co., shoe manufacturers, make a specialty of shoes for boys and girls of school age. The firm was established in 1874, and its members are Edwin S. Woodbury of Boston and David D. Lefavor of Marblehead. In their twenty-eight years of active business life the firm has grown into a prominent position in the shoe trade, and to-day they employ 600 operatives, and some \$250,000 is invested in the business. Their Boston office is at 135 Lincoln street, in the heart of the shoe and leather district. The factory is located at Salem, Mass., and is thoroughly up-to-date in machinery, methods and equipment. It contains some 50,000 square feet of floor space.

## **Brockton of To-day.**

A WONDERFUL RECORD OF GROWTH AND PROGRESS—GREAT SHOE INTERESTS.

The City of Brockton to-day, with its energetic and progressive industries, is a marvel to all who are familiar with the rapid growth of the city during the past thirty years. As the town of North Bridgewater, in 1870, the place had 8,007 inhabitants. In 1874 the name of Brockton was adopted and in 1881 the town became a city, with a population of 13,608 according to the census of 1880.

The present population is estimated at fully 43,000 inhabitants. The 1900 census gave the number as 40,063, but since then the growth has been unprecedented, owing to the great expansion in the shoe business, which has taxed the capacity of the factories to their fullest extent.

During 1901 there were produced in the Brockton factories 629,413 cases of shoes (estimated at over 13,000,000 pairs), which was the greatest output in the history of the city, and an increase of nearly 20 per cent. over the business of the year before. In 1880 the product was 189,490 cases. At that time the assessed valuation of the city was \$6,252,413. Now it is \$28,680,853. In order to provide room in which to turn out pressing orders the local manufacturers were compelled during the past year to make

additions and enlargements of their factories to the extent of about 200,000 square feet of floor area.

No city in the world can challenge Brockton's claim as the leading city in the manufacture of men's shoes. Not only is the Brockton shoe recognized throughout this country as the standard in the fine and medium grades, but it has already established a firm footing in nearly all the civilized countries of the world. In addition to marketing their goods through the regular jobbing channels of trade, several of the leading manufacturers have established retail stores for the exclusive sale of their special shoes throughout the country. During the past year a number of stores have also been opened in the leading cities of England and Germany, the success of which has been very pronounced and awakened a large demand.

The exports of American boots and shoes, which has increased from a value of \$1,010,228 in 1895 to about \$6,000,000 in 1901, has received probably 20 per cent. of its increase by the shipments from Brockton factories. The value of the shoe product of this energetic city during the year 1901 is estimated to have been \$25,000,000, of which about \$6,000,000 was paid to the factory employees.

A very important and favorable condition of affairs in regard to freedom from labor controversies has been brought about by the general adoption of arbitration agreements between the manufacturers and the labor unions, so that to-day the best of feeling exists, and in the event of any misunderstanding or disagreement no interruption of business is permitted. There have, in fact, been scarcely any occasion for even a reference of troubles to the Board of Arbitration for many months.

Brockton was one of the first cities in the State entirely to abolish grade crossings within its limits, the work having been completed five years ago. The successful system of sewerage disposal is constantly attracting delegations of engineers and municipal authorities to the city from all parts of the country and abroad. The schools, fire department, police, highway and other municipal departments, rank high with those of other progressive cities.

The Brockton Board of Trade, which was organized in 1897, has a membership of about 250, and has done much good work through its committees in labor matters, transportation and other directions vital to the welfare of the city. At present the matter of erecting large modern factory buildings with central power plants for the economical generation of power, so as to supply the urgent demand for additional factory accommodations is being agitated. The city is the trade centre for about 100,000 people. The New York, New Haven and



Hartford Railroad Co. maintains numerous express and accommodation trains to and from the city, and frequent service is furnished to the dozen or more towns in its immediate vicinity by an electric railway system which radiates in all directions.

Brockton now stands twelfth in population among the cities of Massachusetts, having moved upward from the twenty-sixth position in 1870. It also ranks eighth in value of its manufactured product.

## Leather's Part.

### ONE OF NEW ENGLAND'S OLDEST AND CHIEF INDUSTRIES.

The leather industry is one of the oldest in New England. The sturdy settlers were practical as well as religious, and early found it expedient to look after the soles of their feet as well as their spiritual welfare. Before shoes could be made the leather had to be prepared, and for this purpose crude tanneries were established in various places in Massachusetts. Therefore the tanners of New England were the pioneers of leather production of the country. From the beginning the tanning trade has been pursued by earnest, capable men. They knew how to keep down the cost of production, and at the same time improve the quality of the product, which is really the secret of success in all business enterprises.

As everyone knows the barks of trees are employed in the tanning process and this was available in large quantities at the start, but in process of time the trees became denuded and the tanners of sole leather were compelled to migrate. It was then thought necessary to send the hides where the bark was and not bring the bark to the hides. Therefore the early tanners migrated to New York State and to Pennsylvania, where they also used up the supply of bark. The tanners of upper leather did not leave New England at all until a much later period, receiving their bark from Maine and Pennsylvania. This was found very expensive, but it is said that they made up for the extra outlay by tanning out superior leather. But eventually it was found necessary to abandon many establishments, owing to the disadvantages of locality and many of those who had won a reputation for the excellence of their product were obliged to go out of the business. In certain sections of the West rivals sprang up who were assisted in their enterprise by experienced men who forsook the Eastern houses for more advantageous positions.

However, there are still to be found a few tanners in New England, though that branch of the industry is nothing to-day compared to what it was when the country was in a more crude state.

This is not to be construed as meaning that the leather industry has declined in this section. It has increased to enormous proportions. A most extensive business is done in Boston in leather of all descriptions and many of the individuals, firms and corporations who do it own their tanneries; but the tanneries are located outside of New England.

The leather and shoe industries are so interdependent that it is not surprising to find that here in Massachusetts, where the boot and shoe industry is greatly in the lead, the leather business is also very important.

The early tanneries of New England encountered innumerable difficulties and many failed to survive in the fierce struggle for existence. Many of their reverses were not the result of inefficiency. The prices of hides and leather are subject to sudden and violent fluctuations, and there have been instances where the earnings of years have been wiped out in a single season by the shrinkage in value of leather, which was lying in the vats unavailable, while the prices were declining so rapidly that when finished it would not bring enough to defray the original cost of the raw material.

But the picture has a bright side. There have been instances of advances within a brief time sufficient to bring large profits to the stockholders of an average-sized tannery. These incidents are common to all industries, not only early in their history, but at the present time. It was eminently fitting that the small tanneries which of old dotted the whole of New England should have disappeared or have been removed to other parts of the country. The great leather industry still remains dominant in the business life of Massachusetts, is constantly increasing and will without question continue to increase. The conditions have changed, that is all.

Up to fifteen years ago it was proverbial for a century that the tanning business, though variable and subject to losses, was sure to be remunerative in any series of five years, if well managed. The conditions are even more favorable to-day, for production has been cheapened, the expense of distribution lessened, materials utilized to the greatest advantage, and economies practised which pervade the entire mechanical world. Cattle growing and cattle killing have increased in late years in far greater ratio than the population, and there has been all this time a surplus of hides.

In New England the tanning nowadays is chiefly of raw materials of the lighter kinds—calf, goat and sheep skins—and other materials besides bark are used in preparing them for the market. Great quantities of kid and calf of the very finest grade are produced in various colors, textures and substances. It would seem as though the very goal of



perfection had been reached, and it is said by good authorities that there is nothing in the nature of leather which cannot be and is not made in this country equal in every respect to the products of any other country. It is possible that patent leather is the single exception to this rule, but the difficulties which have stood in the way of progress in the production of patent leather are gradually being removed, and even now it is claimed that some American patent leather rivals in excellence the historic product of the foremost manufacturers in Europe.

The key to the very great success which has crowned the efforts of New England leather makers is their ability to adapt themselves to circumstances and their aptitude for meeting emergencies. All the knowledge which it was possible for them to acquire, they immediately availed themselves of. They have constantly improved their factories and have been eager to seize every invention which seemed likely to facilitate production or improve the quality of their product. They have always displayed the great American trait of being unsatisfied with finality and have always been on the sharp lookout for something better. They have not only kept in touch with popular tastes, but have learned the great secret of directing tastes, and have managed their affairs with such skill as materially to broaden the market for their wares. It is by reason of their indomitable will, great skill and power of seeing into the future that they have flourished so notably and hold such high rank in the great domain of wealth-creating industry.

An example of the utilitarian tendencies of the men of the leather industry is found in the important product known as scrap leather. This business originated in Boston in 1857, previous to which date all the cuttings in shoe factories, and skivings of hides in tanneries were thrown away. The workshops were littered with these supposedly useless scraps. Finally the larger pieces were utilized and prepared for vamps for children's shoes. This trade was very gradually enlarged,

pancake leather and soles were produced and by the aid of paste, shoddy innersoling, slip soles and counters were made. Upper leather pieces were degreased with naphtha and used for heels or linings. Not long after the Civil War broke out an immense stock of cartridge boxes and bayonet sheaths were manufactured. The buyers made money. To-day there are firms in every shoe centre who deal in this stock. In the meantime tanners everywhere have saved considerable money by selling what was previously waste material. By the census of 1890 it was learned that the value of this material sold yearly was about \$21,000,000.

The record for the leather industry in Massachusetts, as well as elsewhere, in 1901, was not excelled in any previous year. There was a substantial increase in the amount and value of the production, and the majority of firms are reported as having made money. The leather trade in all its branches has been in close touch with the shoe business in volume of sales, and though it has been conducted on rather narrow margins by reason of high prices on raw materials and the sharp competition in business, there has been a remarkable freedom



SUMMER STREET, BOSTON—SHOE AND LEATHER DISTRICT.

from failures. In Boston the leather industry is in a very healthy condition, and the heads of the leather houses, both great and small, are in a very optimistic state, predicting a continuance of the prosperity which has marked the past year. The increasing



export trade in American shoes affects the leather business directly, and gives it a tone and a buoyancy which it has never experienced before.

It is not impossible that the leather business should surpass the shoe industry during the next year. This statement seems at first inconsistent, but it is explained by the rumor that in certain quarters there has not been enough leather to go around and not near enough to fill orders that have been lately accumulating. This applies both to sole and upper. High priced stock has lately been reported scarce and at the same time there has been no plethora of cheap grades. The leather dealers will have to hustle to supply the demand.

**COTTLE LEATHER CO.**—A recent addition to Massachusetts leather houses is the Cottle Leather Co., with salesrooms and offices at 48 and 50 South street, Boston, and a tannery at Woburn, Mass. The officers of the firm, which was organized in August, 1901, are William M. Richardson, President; and F. E. Cottle, Treasurer. The firm is capitalized under Massachusetts laws—which require that all the capital be paid in—at \$150,000. The Cottle Leather Co. are tanners and curriers of upper leather exclusively, and they have established a reputation for thoroughly reliable work, which has placed them in a prominent position among similar New England business enterprises. That their business is prosperous is evidenced by the fact that they employ 200 men.

**THE C. MOENSCH & SONS CO.**—One of the largest leather-producing concerns in the world is The C. Moensch & Sons Co., whose Boston store is 117-119 Beach street. Starting in 1865 with but one assistant, Mr. Moensch has built up a business which employs 850 persons and operates four tanneries—three making upper leather and one hemlock sole leather only,—a hide-glue factory and two stores, one in Boston and another in Chicago. The daily product of the combined plants is about 3,300 sides and ten tons of splits. The C. Moensch & Sons Co. now includes Fisher & Gaensslen of Gowanda, N. Y. and the Fisher Tanning Co. of Salamanca, N. Y.

**WILLIAM F. MOSSER & CO.**—One of the leading sole leather houses of the country is that of William F. Mosser & Co., which has its main offices at 184 to 190 South street, Boston and a Western branch at 184 La Salle street, Chicago.

The business was started February 15th, 1898, by William F. Mosser and Harvey G. Ruhe, the latter having charge of the Boston selling end. The makeup of the concern continued thus until November, 1900, when a consolidation was brought about with the large tanning firms of L. R. Gleason &

Sons and William Irvin & Son, the new firm owning six large tanneries located in Pennsylvania, and in addition handling the product of eight other tanneries, which gives it a total output of about 21,000 sides of sole leather every week.

Such an enormous production necessarily called for a wider outlet, and not the least important indication of Messrs. Mosser & Co.'s progressiveness is to be found in its large and growing foreign trade. In January, 1901, William F. Mosser & Co. opened a Western office in Chicago, and all their domestic hides are bought from this point. The Boston establishment was originally located at 132 Lincoln street, with one floor and a basement, but to-day it occupies the whole of the large quarters at 184 to 190 South street, comprising twelve floors, two basements and a large office space.

## Hides and Skins.

### FOREIGN COUNTRIES AND THE GREAT WEST CONTRIBUTE TO THE TRADE.

Remarkable changes have taken place in the raw skin industry in the past decade. The demand for hides, particularly calfskins, has wonderfully increased, and there have been radical changes in the methods of handling them. The old-time tanner would meet with many surprises if he were to come into the field again. Formerly the farmers of Massachusetts and other New England States furnished thousands of skins annually to the dealers. The season came between March and July. Since the advent of creameries all over the country it has become necessary to secure a uniform supply of milk, and the farmers have had to regulate the coming of the calves at all seasons of the year. This has relegated the raw hide industry, as far as New England farmers are concerned, to the background. Still the farmers supply some skins, but the demand is so great that the domestic supply is entirely inadequate.

It must not be understood that the skin and hide industry has lessened in volume. Great quantities of raw hides are imported annually, South America supplying the greater number. Thousands of these hides enter Boston ports every year. The West is also supplying hides in great numbers, particularly the Chicago packing houses. The Boston houses are doing many times the volume of business that they did only a few years ago. It is probable that there is twice as much business done to-day in Boston, where the raw hide industry of the State is now practically centred, as there was five or ten years ago when smaller houses were more numerous. The outlook is most encouraging.



AMERICAN HIDE & LEATHER CO.,

HIDES AND LEATHER,

17-21 EAST STREET, BOSTON.

NEW YORK AND CHICAGO.

THE UNITED STATES LEATHER CO.,

NEW YORK OFFICES:  
26 AND 28 FERRY STREET.

BOSTON OFFICES:  
204-210 ESSEX STREET.

CINCINNATI OFFICE:  
810-812 SYCAMORE STREET.

CHICAGO OFFICES:  
RANDOLPH AND FRANKLIN STREETS.

CABLE ADDRESS: UNIT, N. Y.

N. W. RICE CO.,

IMPORTERS AND EXPORTERS,  
HIDES, WOOL, LUMBER, ETC.,

ESSEX BUILDING,  
683 ATLANTIC AVENUE,  
BOSTON, MASS.





# The Manufacture of Iron—New England's Product of this Metal Sent to All Parts of the Civilized World.

METALS AND METALLIC GOODS AMONG THOSE SHOWING HIGHEST PERCENTAGE OF PROFITABLE INVESTMENT—THE INGENUITY OF THE AMERICAN MECHANIC—MILLIONS OF DOLLARS INVOLVED—PRO-  
NOUNCED INCREASE EVERY YEAR.



**I**RON, the king of metals, enters largely into manufacturing in New England. Metals and metallic goods are among those showing the highest percentages of profitable investment, and of these iron manufactures are well in the lead. Iron and steel works and machine shops are found in about every manufacturing centre in the East, and the number and products of iron are infinite. In no other branch of manufacturing has the proverbial ingenuity of the American mechanic been shown to better advantage and in no other line has the influence of New England been more widely felt.

Not only do the South and the West still look to the East for their machinery, hardware and a great number of other products of iron and steel, but foreign countries are becoming more and more dependent on this part of the United States for these supplies, in the manufacture of which New England has no superior. The amount invested in iron manufactures in Massachusetts reaches many millions of dollars and shows a pronounced increase every year.

## Iron and Steel.

NEEDS OF BOTH LAND AND SEA SUPPLIED.

It may be said with truth that iron and steel have now come to be the basis of all material progress, for there is practically no limit to their fields of usefulness. This is particularly true in New England, which is noted for the number and variety of its manufactured products. In these products iron and steel predominate over all other metals. It is difficult to know where to begin to mention even

the most prominent manufactures in iron and steel in Boston and vicinity. But some of these which command attention are agricultural implements and the iron work of steamships, tow-boats, steam-yachts and marine engines.

Eastern Massachusetts boasts of plants where all this manufacturing is carried on. All have experienced remarkable prosperity, and from a standpoint of production the past year was a banner one. In the matter of ship iron-work great progress has been made, and there are those who prophesy that this industry, already well advanced on the coast of Massachusetts Bay, will, in a few short years, assume proportions not inferior to some of the greatest plants in the country.

Progress is also the watchword in the making of agricultural implements. The day has passed when the plowshare and simple hand-tools sufficed. The most elaborate machinery for tilling the soil and garnering harvests finds an increasingly large market in all parts of the world. Boston is well to the front in supplying the demand. Boston is now the centre of a new process of steel making which is quite likely to bring about something of a revolutionary effect in some branches of the steel industry. It is no less than a very high grade of steel made entirely from wrought steel scraps with a liberal mixture of certain other metals during the process of melting. It is said that the exceptionally fine steel which is a result of this process has been a great surprise throughout the steel world and has attracted scientific attention in about every quarter of the globe. The manufacture is carried on under patents and the composition of the steel, the methods of making it, the materials and the peculiar process



of moulding, have resulted for the first time in the history of the art, so it is claimed, in the production of cast steel which, in tests carried out in Boston, have proved to possess qualities of strength and ductility equal to those of forged steel.

It is stated by those who have seen the process of this new steel's manufacture that it seemed as if some ingenious Yankee had been admitted into some of the secrets for which the old alchemists sought. An observer exclaimed: "How Tubal Cain would raise his thwpy arm in amazement could he know that the plowshare he hammered into shape

found in the fact that cold chisels and hatchets cast in this steel will, after being put on the emery-wheel, perform their work with perfect satisfaction.

In tests recently carried out by the Government this steel showed a tensile strength of 67,300 pounds to the square inch and an elongation of 25 per cent. in eight inches, while in the bending tests a one-inch square bar of this cast steel was bent cold through an arc of 93.5 degrees without fracture. This steel has been used with great success by Government and private shipbuilding firms in all parts of the country.



VIEW IN THE MACHINE SHOP OF THE LOCKWOOD MANUFACTURING CO.

could now be cast in a mold without tempering or forging and all ready for its work, save the sharpening."

Every sort of steel scrap, borings from a gun factory, clippings from boiler plate, broken wheels and crank shafts, in fact, all kinds of waste and junk are turned, by this process, into bright new tools in a few hours, with only the furnace and the mold as intermediaries. It is stated that these excellent results are obtained with but little sacrifice of the high economy that distinguishes ordinary steel cast. Evidence of its remarkable qualities is

THE LOCKWOOD MANUFACTURING CO.—The Lockwood Upright Rope Machine, a machine that is used in some of the largest cordage plants in the United States and Canada, is the special product of the Lockwood Manufacturing Co. During the past few years this company has built and installed a quarter of a million dollars worth of cordage machinery, and this business is rapidly increasing.

The plant of The Lockwood Manufacturing Co. located, at 61 to 85 Summer street, adjoining the North Ferry in East Boston, was established in 1880 by the late F. A. Lockwood, whose purpose



was to build a patent leather dressing machine, of his own invention, and also to do a general marine engineering business, both building and repairing. The business developed most rapidly in the line of marine engineering work. This concern built the steamers "Longfellow," "Ruth" and "Cymbria"; the tugboats "Channing" and "James Woolley"; the ferry-boats "Swampscott," "Noddle Island," and others. During the Spanish-American War, The Lockwood Manufacturing Co. made alterations on the ferry-boat "East Boston" for the National Government. Large repair jobs on ocean liners, running to the port of Boston, are taken by this company. From 150 to 200 men are employed.

Quincy A. Shaw is President of this great concern; Quincy A. Shaw, Jr. is Treasurer. The Agent and Manager is Arthur H. Fogler, and the Mechanical Engineer is William L. Tobey. The company is incorporated with a capitalization of \$300,000.

G. W. & F. SMITH IRON CO.—There is no firm in their line better known throughout New England than the G. W. & F. Smith Iron Co., the shops and foundry of which occupy six acres of ground on Island, Gerard, Farnham and Reading streets, in Boston. Structural steel and architectural iron work is the specialty of this old and famous concern, which was established by George W. Smith in 1837, and took its present name in 1859. Many of the prominent structures of Boston were contracted for by this concern. Among them were Harvard College, Engineering Buildings, Massachusetts Building, Institution of Savings, the Boston Elevated railroad stations, Keith's and Hollis Street Theatres, residences of Moorfield Story, E. R. Thayer, Dr. Wells, Charles F. Sprague and many others. Among the present officers are: Elmer F. Smith, President; Frank E. White, Secretary and E. L. Wingate, Superintendent. The company is now erecting a magnificent new building of iron that will cover one hundred and sixty feet square. This will be their new foundry on their present grounds. In addition will be other new iron shops, which will occupy 75x235 feet. These buildings are going up fast, and when completed the works of the G. W. & F. Smith Iron Co. will be the finest and most complete of any like company in New England. The company is a member of the Master Builders Association.

UNITED STATES STEEL CO.—In 1898 Charles S. Miller and H. B. Whall associated themselves together and commenced to manufacture under a secret process the now famous "Jupiter" steel castings. The business was conducted in the basement of a small frame building 40x60 feet, and but four

men were employed. In one month the increased business compelled them to seek larger quarters, where they trebled their force, and shipped castings to the largest firms in New England. The year following they organized the U. S. Steel Co., with a capital of \$3,000,000, to patent the process, purchase land and erect buildings. The results can best be ascertained by looking at the results in Everett, where the company now employs 200 men, own seventy-one acres of land and operate the second largest foundry in New England. Some idea of its growth can be obtained from the fact that the contract has just been let to increase the present 200 feet building to 150x500 feet, one of the largest steel furnaces in the country. The officers of this remarkably successful company are: H. B. Whall, President; W. E. Pearson, Vice-President; C. S. Miller, Treasurer and H. R. Bradstreet, Secretary. The Boston office is at 145 Oliver street. The Eastern plant is situated at West Everett, Mass. The demand for Jupiter castings is daily increasing.

A number of very prominent Boston business men are stockholders in the U. S. Steel Co.

## Blowers and Machinery.

APPARATUS WHICH TAKES THE PLACE OF TALL CHIMNEYS AND ABATES THE SMOKE NUISANCE.

Mr. Pickwick admired the chimney pots of London, and found in them an inspiration which aroused his utmost enthusiasm. But Mr. Pickwick was quixotic and a dreamer, and, had he known, only admired the chimney pots through force of habit; for modern Americans have demonstrated that not only are tall chimneys unlovely, but are really of no practical benefit to mankind. To be sure tall chimneys still exist in all cities, both large and small, but the chances are that they are doomed to early destruction. As it is, many great mills and factories which were formerly offset by brick structures that towered to the sky, have entirely done away with the great smoking chimneys and their works have not only not suffered but have been vastly improved thereby. Mr. Pickwick was mistaken, for time has demonstrated that the chimney pots were a disfigurement.

But practical utility and not considerations of the esthetic has decreed the abolition of tall factory chimneys, and this fact has been demonstrated by a modern invention known as a mechanical draft apparatus, which takes the place of the chimney and at the same time greatly reduces the expense of fuel. The manufacture of this mechanical draft



apparatus is an important industry in the vicinity of Boston. The concern which makes them has taken down its tall brick chimney and substituted an engine-driven fan and a short smokestack, which does not extend above its lowest buildings, while great volumes of smoke are no more.

The innovation is described as follows: "The fan operates on the induced system; the gases pass directly to it from the uptake and are discharged through a short stack extending just through the roof of the boiler house. There is absolutely no smoke. The engine speed is automatically controlled so that a very slight drop in steam pressure greatly increases the intensity of the draft. The steam pressure is thus maintained absolutely constant. Comparative tests show an immense saving of fuel by this contrivance.

This mechanical draft has been put into use in many parts of the country with absolute success, and the local company manufacturing the fans is doing a large and increasing business.

The manufacture of all sorts of blowers is a large industry in the environs of Boston. The firm which puts on the market the great mechanical draft apparatus outlined above, through industry, inventive genius and the ability to forecast the needs of this age of labor-saving devices, has built up a large business in the manufacture of blowers and fans, which have taken the lead, are used all over the country, and are exported in large numbers to foreign lands.

THE B. F. STURTEVANT CO.—In 1857 the foundations of the present big manufacturing firm of The B. F. Sturtevant Co. were laid in Boston by B. F. Sturtevant. The beginning was small, the quarters then occupied were but a very little fraction of what are now necessary. The business was a success. Its growth was constant when its perfected machinery began to travel throughout the country. In 1878 the manufacturing business was removed to Jamaica Plain where the several departments were provided with ample room.

The company filed articles of incorporation in 1890. At the present time, E. N. Foss is the General Manager and Treasurer.

A little more than a year ago a severe fire threatened to wipe out the entire plant with all of its valuable machinery. As it was, a considerable portion of the plant was destroyed. It was a setback which would have proven serious to a less substantial firm. The B. F. Sturtevant Co. met the disaster with characteristic business energy.

The burned portions of the buildings were cleared away. Work was immediately commenced upon others of an improved type, and now there is to be

seen near the Jamaica Plain station, on the line of the New York, New Haven and Hartford railroad, well-nigh completed, manufacturing buildings that are a worthy addition to Boston's increasing business.

The products of the Sturtevant Co. are numerous. Each manufactured article is produced in its own department. The several departments employ the year round about 700 skilled mechanics and artisans. The perfected products of their ingenuity and skill are to be found in all parts of the United States and Canada while at the present time there is a considerable demand for Sturtevant Machinery abroad.

It was as manufacturers of blowers that the firm first became famous, but as the business has grown other lines have been added.

Now there are turned out from the Jamaica Plain shops exhaust fans, steam and hot blast apparatus for heating, ventilating and drying engines of all kinds, electric motors, electric generating sets, electric fans of largest size, forges, exhaust heads and many other mechanical appliances.

Every detail of the manufacture is prepared in the works at Jamaica Plain. The plans are prepared in the designing room for each department, and when the appliance has gone through the various processes of manufacture it is shipped aboard cars that back into the midst of the busy plant.

The company has its Boston office and salerooms at 34 Oliver street.

## Wire Cloth.

A MODERN MANUFACTURE WITH A CONSTANTLY  
WIDENING FIELD—ITS WONDER-  
FUL GROWTH.

The wire cloth industry is comparatively modern, the demand for wire netting in nearly all forms having arisen during the last half of the past century. Nearly all the firms manufacturing wire cloth have come into existence since 1850. Within the past twenty-five years the industry has grown wonderfully, and to-day wire cloth is used in many forms of manufacturing, in building, on railroads and in countless other ways.

The kinds of wire cloth most greatly in demand are those used for window and door screens. It was not many years ago that people in moderate circumstances could not afford anything better for their windows and doors than cloth mosquito netting. The poorer people went without either. It was not that they liked flies and mosquitoes better than the people of the present generation, but the wire cloth cost so much that it was beyond their means. To-day wire cloth is manufactured by



machinery, which turns out thousands of square feet daily, and the prices are so low that the poorest persons can have it in their windows and doors of their homes.

Massachusetts is the home of several great wire cloth factories, where the best goods are turned out to meet all the latest demands. The constant building of homes in all parts of the country creates the leading demand for wire cloth designed for window screens, but there is a large trade in galvanized cloth which will stand atmospheric variations, bed springs, poultry netting, woven wire fencing in several styles, wire door mats, which are superior both from a utilitarian and sanitary point of view, locomotive sparker cloth, mining or battery wire cloth and other kinds. Meshes are made expressly designed to meet the requirements of the mechanic arts. There is really no limit to the kinds of wire cloth made right here in the vicinity of Boston.

**THE CLINTON WIRE CLOTH CO.**—The first practical power loom for weaving wire cloth was invented and patented by Erastus B. Bigelow, of Clinton, Mass., in 1857.

In 1856 The Clinton Wire Cloth Co. was incorporated with Horatio N. Bigelow, Erastus B. Bigelow and John C. Hoadley, with a capital of \$20,000.

Throughout its history, this company has kept in advance in all mechanical improvements.

One is the hollow cop, which made possible an increased speed. The output in 1875 was about 5,000,000 square feet, while to-day it is over 106,000,000 square feet of wire cloth and nettings.

The Clinton Wire Cloth Co. has the most complete netting plant in the world. Last year their output exceeded 200,000 bales.

About everything in the line of woven wire this company manufactures. A growing industry is the manufacture of electrically welded fencing, for which this company hold valuable patents.

In 1893 the company suffered heavily from fire, and a loss of over \$150,000. With characteristic energy, the burned mills were at once replaced, and at the present time the industry at Clinton occupies upwards of thirty-four buildings, with a floor space of approximately six and one-half acres.

From 1856 to his death in 1879, Honorable Erastus B. Bigelow was President of this company.

Honorable Charles H. Waters was President from 1879 until his death in 1883, James H. Beal succeeded him in 1883.

Chas. H. Waters was Treasurer from 1858 to 1865, and Chas. A. Whiting, until 1874, when Charles F. Fairbanks was elected.

## As to "The Metals."

AN IMPORTANT ELEMENT IN INDUSTRY WHICH FINDS A GOOD MARKET IN BOSTON.

The trade divides to products of the ore mines into iron and steel and "the metals." The latter classification includes lead, antimony, copper and the other outputs of the smelting plants, which are regular commercial commodities as raw materials.

Boston is a large jobbing centre for the raw metals. A year's dealings in its market foot up an amount somewhat more than half way between five and six million dollars. Although the great mining developments in the States to the south and west of New England have given rise to the upgrowth of numerous distributing centres in their own vicinity, the steady increase of manufacturing in this part of the country, and especially of the making of those things in which metals are used as raw materials, has kept the business of this city good. Each year it shows improvement and the men who have money invested find ample cause for satisfaction.

The importance of the metals in Massachusetts in particular and their rank as a commodity is well indicated in the statistics of manufacture issued annually by the State. Metals and metallic goods is the classification which covers the sources of demand for the raw materials and they stand more than half-way up in the list of the nine leading industries.

**LINOTYPE METAL.**—One of the greatest industries in the country to-day is the manufacture of the metal used in the linotype machines. After the feasibility of the machine was established came the necessity of a metal to meet its requirements. A number of companies were established in different parts of the country, which made various grades with more or less success, but it fell to the City of Quincy, Mass., a suburb of Boston, to produce an article that is universally pronounced as an excellent material, as made by A. B. Packard, for the use of linotype machines and used by newspapers generally.

## Hardware Jobbing.

A TRADE WHICH AMOUNTS TO SIX MILLIONS A YEAR AND IS GROWING IN SPITE OF NEW COMPETITION.

A conservative estimate sets the total yearly business of Boston's jobbers in the manufactures of iron and steel classed commercially as light and heavy hardware, at about \$6,000,000. Slowly but surely the trade is expanding, and, as in other lines, there is a steady and normal growth, with a good tone and consequent encouraging outlook.



The circumstances in which hardware jobbers here conduct their business have altered greatly in fifteen or twenty years. Factories have been put in operation near the raw material supplies, wherever they may be, all over the country, and the result has been the springing up of distributing points for the trade in nearly every one of those localities. Boston has the New England field to itself, however, with practically no molestation, and certain of the agricultural implements which find their natural salesmart are in world-wide use.

There are still in the hardware trade some of the real old-time Boston business men—more, perhaps, than most mercantile lines can boast now. They served their apprenticeship in days when young men had to understand the goods they dealt in from the raw material to the finished article. Their firms were established on the foundation laid by this kind of training and have been built up in accordance with the solid New England prin-

ciples of fair dealing, "right goods and right profits."

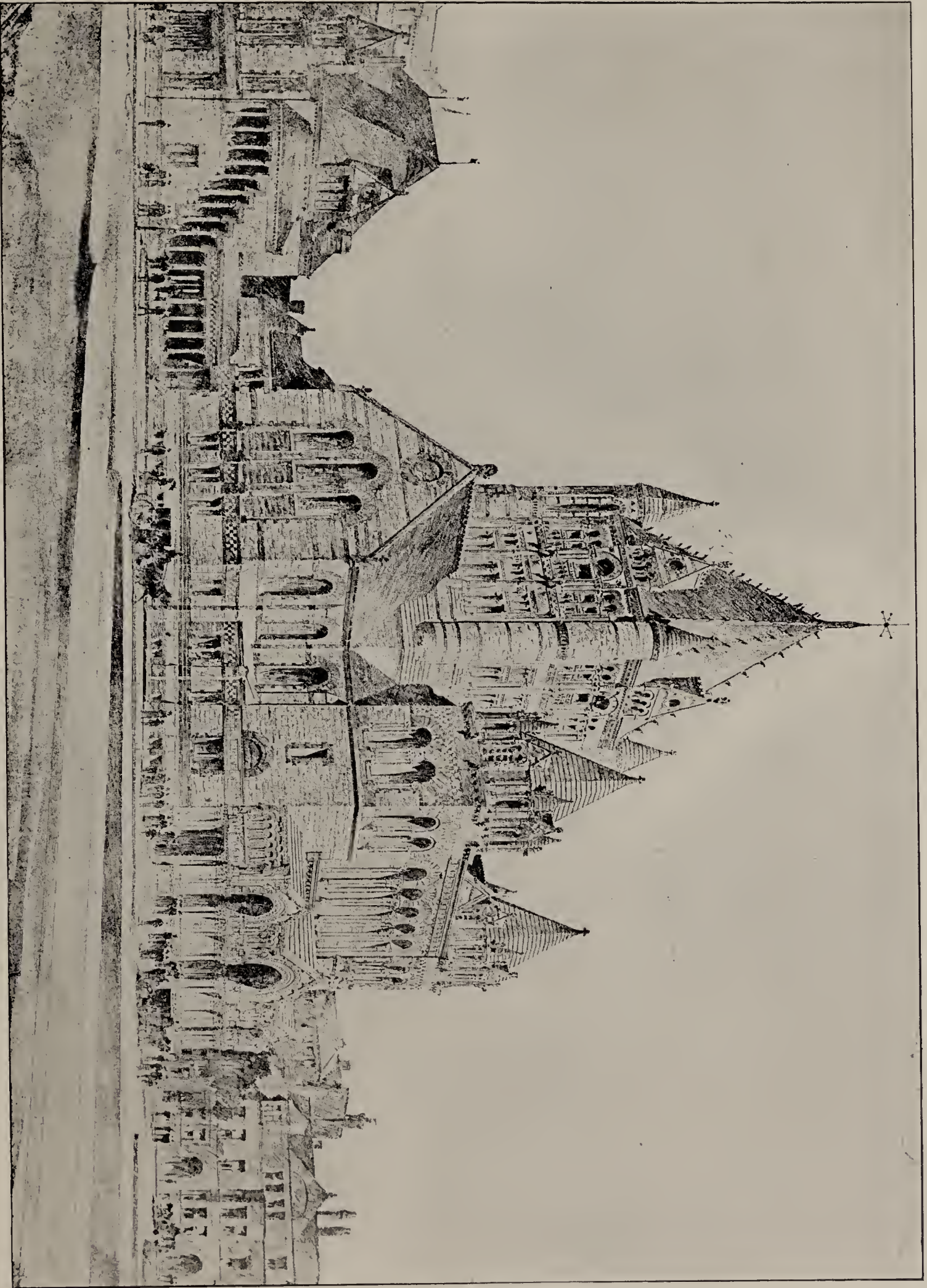
BIGELOW & DOWSE Co.—One of the famous old concerns of Boston is the Bigelow & Dowse Co., whose establishment on Franklin street is one of the important centres of the hardware trade of the United States. Under one style or another the house has been in business since 1839, when it was known as Horton & Cordis, and its history is one of uninterrupted development, which still shows in an increasing business each month.

Samuel A Bigelow, now the President, had been in the hardware trade for ten years when, in 1864, he first became connected with this particular concern, with which Charles F. Dowse, the present Treasurer, had begun his mercantile career four years previous.

The Secretary of the corporation, which was formed under the Massachusetts laws in 1894, is Charles King.







TRINITY CHURCH.

*This is one of the chief beauties of Boston's most beautiful open space—Copley Square. Its architecture compels admiration both from those learned in the profession and from the ordinary passer-by. In the construction of the foundations stone saved from the ruins of the old church on Summer street, destroyed in the great fire of 1872, was utilized. The cost of Trinity, land and building, was about \$800,000. It was consecrated on the 9th of February, 1877. An idea of its massiveness is gained from the fact that the great tower weighs nearly nineteen million tons, and that forty-five hundred piles support the building.*



# The Manufacturing Trade in General Making Great Advances in face of Many Obstacles in the Last Decade.

THE OLD BAY STATE IN THE FOREGROUND—AN INCREASE OF \$200,000,000  
IN TEN YEARS—MANY NEW MANUFACTORIES, IN VARIOUS PARTS  
OF THE COMMONWEALTH—THE FOREIGN MARKET  
AND HOME CONSUMPTION.



THE East is pre-eminently the manufacturing centre of the world to-day, and Massachusetts stands in the foreground with others of the New England States, having made a remarkable increase in all branches of manufacturing in the last decade. Although the past ten years has not been a period of unbroken advancement, Bay State manufactures increased about \$200,000,000, or about 30 per cent., while the number of establishments increased from 26,923 to 29,178. There has been a corresponding gain in capital invested in these ten years, and also in the value of the product of Massachusetts industries.

All of the distinctively manufacturing cities in the State have made satisfactory advances, but Boston still continues to be the centre from which springs the business control of the whole Commonwealth. New manufactures have been produced, while the tendency has been to improve each year on the quality of the old. Foreign markets are being invaded as never before by Massachusetts manufactures, and the home consumption is continually enlarging. The outlook for manufacturing was never brighter than now.

## Rubber Belting.

OLDEST MANUFACTURERS IN THE COUNTRY  
LOCATED IN BOSTON—GREAT  
RECENT GROWTH.

It is possibly unknown to many persons that the manufacture of rubber goods is an important industry in Massachusetts, and is carried on extensively in Boston. Several of the New England States contain large rubber works, and Massachusetts is well

to the front in this line. Boston is the home of the oldest rubber belting manufacturing concern in the United States. This firm also has the record of being the original makers of India rubber goods for manufacturing purposes, having been established three-quarters of a century ago and now being capitalized with \$1,000,000 paid in. The manufacture of rubber goods in Massachusetts began, perforce, in a small way, as the demands of seventy-five years ago were very limited.

One of the earliest products of this line was fire hose, but this has been greatly improved. Our ancestors were content to trust in Providence and let the rain from the clouds water their gardens and grass plots, but moderns are more impatient and use city water drawn through a garden hose.

Improvements in railway mechanism have been productive of the latest demand for rubber goods. Up to date railroads now equip their trains with three distinct hose attachments, the air brake hose, steam car heating hose and air signal hose. These are made of rubber and have greatly increased the business of rubber goods manufacturers.

Another modern use of rubber is the manufacture of air and steam drill hose for mining purposes.

BOSTON BELTING CO.—The India rubber industry in the United States was started in 1828, in Roxbury, by the Roxbury Rubber Co., and rubber manufacturing developed its success when this original company was merged into the Boston Belting Co., a corporation formed in 1845. The Boston Belting Co. was the first in the United States to manufacture vulcanized rubber goods. At its factories the process of vulcanizing rubber was perfected, and there, also, the manufacture of all the various kinds



of rubber goods was originated and developed. As the industry grew, rights to manufacture rubber boots, shoes, clothing, etc. were sold—The Boston Belting Co. retaining the right to manufacture mechanical rubber goods. Much of the machinery now extensively used in the manufacture of mechanical rubber goods was invented and perfected at the Boston Belting Co.'s plant. Mr. James Bennett Forsyth, who has been associated with the company from boyhood, and who is now its Manufacturing Agent and General Manager, has been granted over fifty patents relating to rubber manufacturing machinery and processes of making rubber goods.

The factories of the Boston Belting Co. are located in Boston. They give employment to about 700 men. The company operates stores at 256-260 Devonshire street, Boston, 100-102 Reade street, New York, and 90 Pearl street, Buffalo. It has agencies in all the important cities of this country, and is also represented in England, Germany, Switzerland, Australia and Japan.

## Crude Rubber.

BOSTON THE EARLIEST HOME OF A TRADE WHICH IS BECOMING MORE AND MORE VALUABLE.

The handling of crude rubber is an industry carried on in Boston to an extent not realized by the majority of persons. There is every reason why this business should occupy an important place in the commercial world of the metropolis of the East. The manufacture of rubber goods is an enormous industry in Connecticut and not less so in Massachusetts, the oldest firm of this nature in the country being located in Boston. Rubber footgear, clothing, belting, hose of all sorts, bicycle tires and hundreds of smaller articles are manufactured in

the New England States and this naturally creates a big market for the raw material.

The average person can hardly realize the millions of pounds of rubber that are required annually for the production of these goods. Popular stories have been circulated from time to time of the probability of the early exhaustion of the rubber supply, the cause ascribed being the immense amount of rubber imported in late years for the making of rubber tires for bicycles and horseless vehicles. But this alarm seems to have been causeless. Great quantities of Para, which is the finest quality of rubber in the world, were imported in Boston and other ports during the past year, as well as tons of Congo rubber, a more crude, but valuable variety.

The major portion of crude rubber now comes from Brazil and there is every indication that the rubber forests of that country will not be exhausted for a hundred years to come.

Boston is the home of a large crude rubber importing house, the manager of which said recently that there was no indication that the rubber supply would ever give out. Business in this line was in a flourishing condition throughout the past year, showing a decided increase in the amount of rubber imported. The outlook for 1902 is as bright as in any industry in the country.

GEORGE A. ALDEN & Co.—Boston is represented almost the world over by George A. Alden & Co., importers, whose principal and main offices are at 170 Summer street, in the Wentworth Building. The principal lines in which the firm deals are crude rubber, gutta percha, shellac and cocoa, and its business runs up in two figures of the millions.

This concern was started in 1855 by George A. Alden, who began as a broker, and has grown steadily until to-day it is represented in all of the



KING'S CHAPEL.

*This is one of the most picturesque relics that the city possesses. It has stood since 1754, having been first used in August of that year, after five years spent in building. The design of the architect included a steeple, but none was ever built. Through the siege of Boston it was the church which the British officers regularly attended.*

*The burying ground at the side of the Chapel was the first laid out in Boston. The exact date of its establishment is not known, but the first burial was in 1630. The church is still used every Sunday.*



foreign markets and maintains its own houses in New York, in London and Liverpool, in Para and Manaos, Brazil, in Paramaribo, Surinam and Trinidad, Port of Spain. In New York the rubber, shellac and cocoa branches have each separate establishments. The business of the firm and its various branch houses and agencies amounts yearly to about \$16,000,000 in rubber alone. In shellac its annual trade is a full million and in cocoa one and one-half millions.

Besides these specialties Messrs. Alden & Co. have a business in foreign gums amounting to 3,000 long tons every twelve months.

George A. Alden is one of Boston's representatives old-time merchants, the men who laid a good share of the foundation of America's present prosperous foreign trade. With him, in the firm, are A. H. Alden and Arthur W. Stedman. They are men of his own type.

## **fertilizer Making.**

HOW NEW ENGLAND'S NECESSITY HAS BENEFITED THE FARMERS OF THE WHOLE WORLD.

As the early New Englander wrested his livelihood from the hardy soil, and as many of his descendants are farmers to-day, it is only natural that the interests of agriculture and the manufacture and distribution of its aids and necessities should engage the attention of some of the shrewd and skillful men of the Pilgrim Commonwealths. The efforts which personal needs first called forth were, by degrees, broadened, and the Western pioneer looked to his Eastern home for the means of tilling the prairies and making fertile the great wastes which have since his time become the fertile gardens of the world.

From the axe which cleared the forests, the plow which broke the ground and the various implements which cultivated and harvested the crops, the natural step was toward increasing the fertility of the land. The New England soil was rough and hard in places and needed encouragement to do its best. Then science was called into consultation with the farmer's experience, and experiment and practical test, patience and skill established and built up, at length, a great fertilizer industry. Now it employs hundreds of men and thousands dollars every day.

LOWELL FERTILIZER CO.—Few concerns in any line of business have the facilities for producing the best possible results that the Lowell Fertilizer Co. has with its offices at No. 44 North Market street, Boston, and its works at South Lowell,

Mass. It manufactures the highest grade of animal fertilizers and imports and deals in the finest agricultural chemicals, including in its specialties also a food for cattle and several poultry foods. Its goods have made its brand "Lowell" known all over the world.

The company is capitalized for a million dollars and consists of E. C. Swift, G. F. Swift and J. F. Lockwood. It was established in 1895 and the great Swift's packing establishment furnishes an unequalled supply of many of its materials.

## **Glue and Curled Hair.**

MATERIALS ONCE CONSIDERED WASTE NOW  
VALUABLE IN COMMERCE—AN  
INTERESTING HISTORY.

The average person is probably quite ignorant of the origin of glue, and unaware how extensively the substance is used in many branches of manufacturing. And yet the making of glue is an important industry in Eastern Massachusetts. One firm, which has its headquarters in Boston, has a large factory in the environs of this city and an enormous plant in Philadelphia, employing in all several hundred hands. Glue and curled hair are turned out in great quantities annually.

BAEDER, ADAMSON & CO.,

MANUFACTURERS

GLUE, CURLED HAIR, SAND PAPER, EMERY  
CLOTH, HAIR FELTING, ETC.

### FACTORIES:

PHILADELPHIA.  
WOBURN, MASS.,  
NEWARK, N. J.

### STORES:

PHILADELPHIA,  
NEW YORK,  
BOSTON,  
CHICAGO.



The manufacture of glue is an industry which had a very primitive origin. The glutinous substance is extracted from the hides of cattle, and in the ancient days, principally in Europe, the country butcher used the odds and ends of his hides in making glue, which he peddled about the country, or disposed of to wholesalers. In the early days of this country concerns were started which made a business of buying up all the hide scraps from the butchers and making them into glue, and very shortly the country butcher found he could dispose of the scraps in this way to a better advantage than he could make the glue himself. In this way the

foundation stones were laid of an industry which has steadily grown in importance and volume of output. To-day the glue manufacturers look to the tanneries mostly for their raw material.

The raw material for curled hair is principally imported from South America. The hair is from the tails and manes of horses which are raised in great numbers on the plains of South America, the horses being sheared every three years. The hair is strong and wiry and is curled by a process of braiding. Curled hair is used in upholstering furniture and mattresses, and the amount consumed annually for this purpose is constantly increasing.





# In the Public Service—The Telephone System, Gas and Ice Companies, which Supply Important and Necessary Needs of the People.

INTERESTING FEATURES AND RESPONSIBILITY OF THESE INVALUABLE INSTITUTIONS—THE MAGNIFICENT TELEPHONIC SYSTEM OF NEW ENGLAND—  
BOSTON'S EXCELLENT GAS SERVICE IS UNSURPASSED ANYWHERE—EVERY FACILITY, IMPROVEMENT AND  
CONVENIENCE GIVEN THE CITIZEN.



HERE are certain features of modern life that are in such constant use that the average person is apt to overlook their importance. The magnificent telephone system which extends all over New England is perhaps one of these. But if it were discontinued for a day consternation would ensue. Nowhere in the world is the telephone system more complete or better adapted to public needs than it is in New England.

With the advance of electricity one is apt to forget gas, but it is indispensable. Gas to-day is employed for a hundred purposes where it was one a few years ago. Its importance as a fuel is every year becoming more apparent. Boston gas is supplied from plants equipped with every modern accessory.

It is said that Americans have to go to London to appreciate what it is to be without ice. Certainly Bostonians will never learn at home. Every facility in the way of purity of quality, reasonableness of price, and convenience in distribution is given to the people of the Hub.

## Telephones.

### THE BINDING TIE OF ACTIVE MODERN LIFE.

The wonderful story of the telephone is thoroughly American. The little instrument which has become such a common daily necessity and convenience that its marvels are seldom thought of now practically owes its being to American genius,

and it has been brought to its highest state of perfection in this country. And men of Massachusetts—most of them men who lived within the circle of "Greater Boston"—had large shares in its suggestion and invention.

In 1837 Dr. C. G. Page, of Salem, Mass., drew attention to the sound given forth by an electromagnet when the electric circuit is broken or closed, and this is the first hint in the application of electricity to the telephone. It was the basis of the first experiments in the transmission of music and speech. The earliest worker at the modern telephone, and the man to whom the present great commercial importance of the instrument is due was A. G. Bell. Prof. Dolbear, for so many years at the head of the physics department of Tufts College, made simultaneous experiments with Bell, and practically simultaneous but independent discoveries relating to the adaptation of the electromagnet to sound transmission.

Thomas Edison patented a peculiar and novel transmitter and receiver in 1877, and Elisha Gray of Boston performed experiments very similar to Edison's, which he reported in 1875 and 1878. Bell in a patent and Gray in a caveat, which was, curiously enough, filed but two hours after Bell's papers, recognized the principle on which the telephone instrument of to-day is constructed, and their idea has been perhaps the most fruitful of any modification of telephone apparatus introduced. Emile Berliner and Edison were next in the field with new transmitters, and in the early part of 1878



Prof. Hughes put forth the microphone, of which some of the best modern transmitters are modifications. One of the most perfect transmitters, and the one most commonly employed in this country in particular, was contrived by Francis Blake, also an American.

The telephone has then been in existence about a quarter of a century, although it has been in general use but little more than a score of years. Its development has been one of the most remarkable feats of an age of scientific wonders. From a mere local convenience it has spread to a long-distance service that is one of the elements which make possible modern business. The fact that it is instantaneous, that it permits of the discussion of a matter by two persons without the delay incident to other means of communication, and that, at little cost, it makes it possible to save the expense and time formerly necessary for a personal interview has not only made the long-distance telephone popular, but has been an incentive to its extension and to many improvements in its working.

The result is an almost ideal service throughout the United States, in which New England seems to be most favorably treated.

Long distance telephoning began in this country in 1883, when New York and Cleveland, 650 miles apart, conversed with each other. To insure distinctness over such a distance, especially fine instruments and wires were employed, and instead of using the ground for a return conductor, as is done in the local service, two wires of copper were used. For several days after the great blizzard of 1888 the only direct means of communication between Boston and New York was by long distance telephone, its lines alone having withstood the force of the storm.

In 1892 New York and Chicago were connected by telephone. This was a great advance, for though the distance between the cities is nearly a thousand miles, communications were spoken and heard at either end with as much ease as if they had been neighborhood conversation. Questions whispered into the transmitter were plainly understood and

answered in like manner. The New York-Chicago line was twice as long as any that had been operated up to that time. The year after its opening it was put to what was in that day considered the supreme test. The wire was connected at New York with the Boston lines, which increased the distance traversed to 1,259 miles, and a program of songs and recitations given in this city was listened to by a distinguished company invited to witness the triumph in Chicago.

Five years ago the longest telephone line in operation anywhere was the one from Boston to Memphis, Tenn., 1,600 miles away. Since then another long step has been taken, and now Boston and Omaha, Neb., or Kansas City, Kan.,—the latter being the longest distance the telephone has yet

covered—chat daily and as comfortably and distinctly as if they were on opposite sides of a fifty-foot street. These results are due largely to the metallic circuit and the so-called long distance transmitter, the receiver having been altered but little since its first introduction.

The more general understanding of the advantages of the telephone have

brought, of course, a tremendous expansion of the telephone service. The establishment of "pay stations" for the use of the general public has been a great convenience and has met with such a demand that the growth of this branch of the telephone business alone has been phenomenal, its usefulness being made the more readily available by the addition of telephone service to the long list of things which can be had by dropping a coin in the slot. Individual instruments which, set on a metal standard, may be moved from place to place with ease are nowadays a necessary part of the equipment of every well-furnished business establishment, and progressive hotels place in every room a telephone which connects directly with the outer world. The most recent innovation, installed only in the largest cities as yet on account of its great expense, is the common battery system by which communication is established with the central office when the receiver is lifted from its holder, so that only one hand is engaged in using the instrument. A little button



BOSTON PUBLIC LIBRARY.

*This is the largest library in the world for free circulation. The present building was opened to the public in 1895, and has room for two million volumes, beside ample space for students and readers. It houses, too, world famous sculptures and paintings, including work from the chisel of St. Gaudens, and the products of the brushes of Sargent, Abbey and De Chévrannes.*



which, when pressed, isolates the transmitter so that the listener at the other end of the wire can be cut off for a moment without the necessity of disconnecting him altogether is one of the minor advantages introduced within a year or two.

This tells of the mechanical improvement in this epitome of modernism, the telephone, and of its increased value, to the cities and the business man, but there is another chapter which is, in its way, quite as interesting and important. It refers to the use of telephones in factories and mines, in the rural districts and on farms. Where in the old days personal presence was the only way of superintending a large manufacturing plant, now telephones connect the directing head with his lieutenants and puts him in direct and instant touch with every department which comes under his management. The miner, hundreds of feet from daylight and the open air, used often to be cut off from communication with those on whom his

safety depended while he was at work. Now the telephone links the furthest tunnel with the shaft opening. The use of field telephones in military operations is being rapidly developed, too.

The "country districts" are finding the telephone a great boon, and as it becomes better known are taking it up rapidly. It has done more than any one other thing, unless it be the railroads, steam and trolley, to take the comforts and progress of modern life into the remote places. On the great farms of the West it connects the headquarters at the ranch house with distant fields and ranges even; and saves the farmer the necessity of going to his market to dispose of his crop by giving him direct

verbal connection with his customer. In the East, where distances are less magnificent, it is of equal value in the business intercourse of the farmer and plays a prominent part in his social relations. It has proved of extreme value in many an emergency.

The equipment of the long distance and local telephone systems in New England includes every improvement. There in that part of the country east of the Mississippi River 375,000 telephone subscribers, and New England has perhaps a larger proportion of them than any other one section when its population is considered.

#### THE AMERICAN TELEPHONE AND TELEGRAPH CO.—

Out of the invention of Alexander Graham Bell, which was made known to the world a little more than twenty-six years ago, has grown up a great industry which had its inception in Boston, and has been controlled by Massachusetts men and Massachusetts capital from the beginning. Through the operations of its local companies, The American



PUBLIC GARDEN AND WASHINGTON STATUE.

*In one of the pleasantest spots in the famous Public Gardens is Thomas Ball's equestrian statue of Washington. It represents Washington at the time of middle life, the countenance and attitude of the figure full of force and vigor.*

Telephone and Telegraph Co. represents a vast system of telephonic intercommunication with nearly a million subscribers in the United States. This service involves the use of about two million miles of wire, while the number of telephones now under rental exceeds two million. It should be understood that the word "telephone" is here used in the strict sense, and that the equipment furnished a subscriber, commonly called "a telephone," really includes two telephones, a receiver and a transmitter.

While the local telephone business within the limits of the territory belonging to each local company is in its hands exclusively, the more extended



business, that commonly called "Long Distance," being that portion which extends from a point within the territory of one company to a point within the territory of another, is reserved by The American Telephone and Telegraph Co., and is conducted as a separate department. Its lines extend to and connect all the principal cities of the United States east of the one-hundredth meridian, which practically bisects Texas, Kansas, Nebraska and the Dakotas. The company has nearly four hundred offices in the cities and towns within these limits, but its business comes, mainly, directly from the homes and offices of the subscribers of the local companies, the latter always having facilities for connecting with the "Long Distance" lines.

An estimate, based upon the best information obtainable, places the number of daily telephonic conversations in the United States at three-quarters of a million, and annual aggregate of nearly nineteen hundred million. And it is an interesting fact that, as time goes on, the amount of use of the telephone increases steadily,—not only because the number of subscribers is greater, but also because the whole body of subscribers use it more and more. The telephone habit is a growing one.

The American Telephone and Telegraph Co. owns and occupies a large nine-story building, covering the numbers 117 to 127 Milk street, in this city. In this building are also the general offices of The New England Telephone and Telegraph Co., the "local" company doing business throughout the greater part of New England. The upper story contains the mammoth switchboard of "main," the central office which serves the chief business section of Boston. This switchboard was installed and put into operation about a month ago, its predecessor having been condemned as out of date, because of the rapid advance in the art. In the great room in which it and other auxiliary boards stand, there are over 350 employed operators. For over twenty years the service has been continuous, never ceasing nights, Sundays or holidays.

Throughout the country, in the early days, learning to become an operator was a simple matter, but with the change in apparatus, the enormous increase in the number of subscribers, the great diversity of classes of service, and the vastly increased use, it takes time to become an expert. It is a mistake to suppose that the operators become mere machines. There is a great diversity of things to be done, and they must be done on the instant. That takes brains. It is the imperative rule that subscribers must be treated with courtesy. It is not pretended that this rule is never broken. There are few rules of which that can be said. But it is fair to say that if any one will visit one of these great hives of

steady and exacting work, and see what promptness and accuracy are necessary, he will be disposed to be a little lenient, and admit that some allowance must be made for human nature. And he will go away with the determination to be courteous, patient and good-natured on his side, when things telephonic do not go just right; and so help out, rather than complicate the difficulty,—whatever it may be.

The operators form but a portion of the great body of employees that find employment because of the telephone. There is a vast amount of outside work in the construction and maintenance of lines overhead and underground. There is, in every city, a large force of inspectors constantly employed in looking after apparatus and keeping it in proper condition, and a very large office force is required in the accounting departments. Actually employed by The American Telephone and Telegraph Co. and its allied companies, are about 35,000 persons, but this is very far from representing the whole number to whom the coming of the telephone has given work. There are several large manufacturing establishments devoted very largely to the production of apparatus for the use of the companies, while a great number of concerns all over the country, engaged in many lines of production, find telephone companies among their largest customers. Like many another labor-saving machine, the telephone has opened new lines of industry and has benefited others already established.

### **The New England Telephone and Telegraph Co.**

What would this progressive age do without the telephone—the means of bringing the commercial, industrial, and social worlds together? In itself, the telephone stands for progress; it enables business to be carried on in different parts of the country, with the same ease and dispatch as if in one room, with the same satisfaction, of personal call.

To grasp some idea of the value of the telephone service, think what would be the result if all the telephones in the country should suddenly be removed. Business would be immediately paralyzed. Industries would come to a standstill, and the world would practically stop. Thus is to be seen that the telephone is in reality the mouthpiece of the country, and through its service daily depends the government of millions of dollars of invested capital. The ending of the present century is finding the telephone one of the leading factors of progress and civilization, and its use could not be dispensed with. The manufacturer, the lawyer, the doctor, by its use are brought directly in contact with their inter-



ests, their clients and patients. Government could not be successfully carried on without this means of communication, as it brings the heads of departments into close relations with subordinates. Even the household finds the telephone an important agency.

The New England Telephone and Telegraph Co. is that branch of the great Bell system which manages and controls the telephone service of New England. The company's headquarters are in the magnificent building Nos. 117-129 Milk street, Boston. This company has the absolute control of what is known as "local business," which means all subscribers in New England, and has in addition direct connections with all principal points in the States east of the Mississippi River.

The tariff is based in New England on a three-minute rate, and a three-minute conversation will comprise about 300 words. Night rates are one-half the day rate.

The demand for residence phones is rapidly increasing. People who have once had a telephone in their house find it absolutely indispensable. It saves a vast deal of money, labor and trouble, and is a sort of insurance against worry and grave emergencies. It is the most accommodating kind of a member of the family, for it will do so much for so little.

A "business house" can hardly earn the title without a telephone, for the "phone" does the "talking," and usually the one who does the talking does the business. A message by "phone" always brings an immediate answer. The officers of The New England Telephone and Telegraph Co. are as follows: Thomas Sherwin, President; H. S. Hyde, Vice-President; W. R. Driver, Treasurer; G. W. Leedom, Secretary and Auditor; Jasper N. Keller, General Manager and William J. Denver, General Assistant Manager.

## Gas Lighting.

### AN ENORMOUS INVESTMENT AND GOOD SERVICE.

The lighting of a great city is not only a most important public service, but it is a most difficult one to perform satisfactorily, and to say that Boston has cause for much gratulation is high praise for its gas companies. They perform their duties to consumers as well as the gas companies of any of the big municipalities and for a much lower charge than many of them.

There are ten gas companies in Boston, four of them associated in each of two groups or combinations and the other two entirely independent. These latter have territory which is cut off from the city proper by the harbor and by the Charles River, one

operating in East Boston exclusively and the other only in Charlestown. The total capitalization of the ten companies, including a certain amount in bonds and coupon notes issued by one of them, is \$12,529,600.

With such financial resources the gas companies are in a position to render most efficient service at reasonable cost, and that appears always to have been their endeavor. Newly opened districts have been promptly taken care of as the city has grown, and that has been very rapidly at times. There has been no niggardliness, but an apparent disposition to deal fairly and even generously with the consumer and with the municipality in many regards, in return for which numerous valuable privileges have been bestowed. The rivalry among the corporations has been almost uniformly of the friendly kind, which has benefited them and their patrons alike in the end.

There has been an enormous increase, of course, in both the territory and the population of Boston since the first of the city's gas companies began business in 1823. Then its area was two or three square miles, and the number of its people was about 50,000. The annexation of adjoining towns and cities and the later growth of the enlarged city have produced a municipality which to-day covers thirty-eight and one-half square miles and has a population of five hundred and sixty-odd thousands. Even though the annexed districts had companies of their own which are still in active existence, the business of furnishing light for growing Boston was a tremendous one and involved a great many difficulties and considerable risks; but it has kept pace in efficiency with the heavy demands made upon it.

Including the semi-rural fringe which hangs about the edge of all large cities, sparsely populated and not yet ready for all of the improvements of the more built-up sections, there are upward of 500 miles of public highway in Boston, counting the innumerable little alleys and avenues in the old part of "down town," on which practically no buildings front. Through these streets and byways run 841 miles of gas mains, forty-nine miles being in Charlestown, twenty-two miles in East Boston, and the remaining 770 miles covering the city proper and the southern and western districts. These pipes supply the illuminant which is measured by 98,211 metres.

There are, then, nearly 100,000 customers of the various companies, and in the last fiscal year they consumed the almost incomprehensible total of five and a half billion—or, to be exact, \$5,417,829,689—cubic feet of gas. Coal gas and a mixture of coal and water gases were the commodities supplied in the period to which these figures refer.



Many improvements in the methods of making and supplying gas and of measuring and using it have been developed since its first introduction to Boston, and the various companies of the city have been quick to see their advantage and to adopt them, whether they were to benefit the corporation or the consumer.

The quantity available has always been

abundant, and its quality has given general satisfaction. There has always been a reserve supply, and indeed of late years, extra plants, which could be used in an emergency. Any kind of disturbance of the service has been as quickly set right as detected and the promptness shown in all manner of repairs has been thoroughly commendable.

The work of laying mains and putting in connecting pipes has been done thoroughly and carefully in the beginning, with the result that, when unmolested by outer influences, it has been remarkably permanent. Boston has been happily free from the extensive tearing up of pavements and digging up of roadbeds, with the consequent interference with traffic, which so sorely afflicts many large cities. This is in itself reason for no little complacency.

The mechanism by which the amount of gas supplied to the individual consumer is measured—the metre, as it is commonly called—has been improved in many ways since its original invention, and Boston gas users have benefited by all of them. The most recent of them is the automatic purchasing arrangement, by which the customer drops a coin into the metre and is forthwith furnished the number of cubic feet for which the money he deposits will pay. This avoids the trouble of being obliged to have the gas cut off from premises which are vacated or are temporarily unoccupied and the annoyance of having new connections made and a new metre installed whenever it is desirable to have the service recommenced, and has proved very popular.

Since the use of gas as fuel became general the various companies have been most liberal in affording facilities for its introduction for cooking and heating. The quality of the supply has proved excellent for these purposes, and its general desirability such that there is said to be no other city in



NORTH END WORKS. BOSTON GAS LIGHT CO.

the East, dependent on manufactured gas, in which so much of the commodity is employed in other ways than illumination.

The gas companies of Massachusetts are under the supervision of a State board which tests at frequent intervals the character and lighting power of the illuminant being supplied and examines the metres in use for their accuracy as occasion requires. The matter of piping and of fixtures is also subject to its constant inspection. This system has proved of mutual advantage to the consumers and the manufacturers, who co-operate earnestly in the commission's work.

THE BOSTON GAS LIGHT CO.—The Boston Gas-light Co. incorporated in 1822. Dr. John W. Webster, by whom the first experiments had been initiated, became the principal Manager of the new company. The first President was Bryant P. Tilden, and among the stockholders were Charles P. Curtis, John C. Gray, Francis C. Gray, Horace Gray, Patrick T. Jackson, William Prescott, Franklin Dexter and Nathan Hale. In spite of the forethought and energy of these gentlemen the new enterprise proved very successful, and some of the stockholders gave away their shares, rather than become liable for further assessments.

The manufacture was discontinued; but it was soon resumed under the direction of Mr. Henry Robinson, who had already established gas works in Baltimore. He came to Boston, in 1827; and a small lot was bought for the erection of new works. Mr. Robinson was chosen President and the enterprise began to prosper. Since that time, the company has quietly pursued its own way. In no other Atlantic city has gas been sold lower than in Boston. In 1828 when the affairs of the company were first put on a commercial basis, the price of gas was



fixed at \$5.00 per thousand feet, with an annual meter-rent. Soon the meter-rent was abolished, and by successive steps the price of gas has been reduced to \$1.00. The Boston Gas Light Co. probably possesses the best administrative force of any gas company in the country. It has always led in applying modern appliances and the best of modern manufacturing methods to the manufacture and distribution of gas, and at the present time no city in the country is so well equipped in this direction as Boston.



BOSTON GAS LIGHT CO.'S OFFICE  
BUILDING,  
24 West street, Boston.

Boston, being built largely on made land with its crooked, narrow streets, presents many problems to the gas manufacturer. But in spite of all the difficulties The Boston Gas Light Co. has made a record that stands almost unique for furnishing a high quality gas at a minimum of cost and leakage.

The company's offices are at No. 24 West street, (shown in cut) and adapted to the use of the company. The company manufactures a large part of

its gas at its North End Works, covering seven acres of land, where it manufactures a high grade water gas, its candle-power being nearly twenty-six candles, which in quality and cheapness is the best.

Boston has reason to be proud of the fact that one of its most successful corporations is also one of its most progressive and has been among the first in the country to adopt the most improved modern methods. The Boston Gas Light Co. to-day stands as perhaps the most representative of solid Boston institutions, old in years, conservative in methods, and always among the first to adopt and adapt modern improvements.

That the sales of gas are constantly increasing is shown by the following:

1899	1,066,948,430	cubic feet.
1900	1,097,648,750	" "
1901	1,136,210,980	" "

BROOKLINE GAS LIGHT CO.—It was on February 19, 1853 almost half a century ago, that a charter was granted to the Brookline Gas Light Co. At that time gas was a novelty, and it was a number of years before the manufacture of gas by this company was met by a large demand. The company has now a capital stock of \$2,000,000 and assets that were quoted in 1899 as amounting to \$4,627,907. Its sales for the same year were 690,110,000 million feet of gas. This company sells gas in all parts of Boston and Brookline, Mass., although until 1893, its field was confined to Brookline and that part of Boston known as Brighton.

The development of electricity demonstrated to the managers of the Brookline Gas Light Co. that, in the sparsely settled communities like Brighton and Brookline, there would be greater economy in the use of electricity for illuminating purposes than in the use of gas. As a business policy, therefore, this company extended its plant and proceeded to manufacture electricity for these communities, and now sells electric current in all parts of Brookline and Brighton. Its electric plants are valued at about \$113,000 and its electric lines are valued at about \$162,000.

In 1893, the Brookline Gas Light Co. had a capital stock of \$500,000, total assets of \$1,111,985.36, total liabilities of \$1,068,116.67, showing a surplus of \$43,868.69, and it was selling about 66,000,000 feet of gas. In less than ten years its assets have been more than quadrupled, and its sales increased more than ten-fold. There was a reason for the great advance outside of the ordinary growth of business. Owing to a contest between the Standard Oil interests of New York, and Mr. Addicks, the controlling spirit of the Bay State Co., the Standard Oil party bought the controlling interest of the Brookline Co. and entered into the Boston field.



This action was the beginning of a spirited competition which continued from 1893 to 1896. On May 2, 1896 a contract was made between the Boston Gas Light Co. and the Brookline Gas Light Co. This contract had the effect of putting an end to the struggle for possession of the Boston field. The Brookline Gas Light Co. by the force of new capital and by the enterprise and financial ability of such a man as Henry M. Whitney, had developed in a few years to one of the controlling factors in the gas situation of the great City of Boston.

The officers and directors of the Brookline Gas Light Co. are: Directors, Henry M. Whitney, of Brookline, President; Wm. L. Elkins, Jr., of Philadelphia; George H. Finn of Brookline; Vice-President, R. W. Lord of Boston; F. Tudor, Jr., of Brookline, Treasurer and General Manager.

The head office of this company is at 24 West street, Boston, Mass. Its works are located in Brookline and Allston, Mass.

## The Supply of Ice.

WHOLESOME, PLENTIFUL AND ECONOMICAL—A PUBLIC NECESSITY CAREFULLY MET.

In a climate of sudden changes, involving in the summer months periods of considerable heat, accompanied by extreme humidity, the public health and comfort are not a little dependent on a wholesome and plentiful supply of ice, and in this respect Boston is well looked after. Not infrequently in so large a city sickness has been found directly traceable to the ice distributed among its people, but Boston has never been troubled in such a way, a fortunate condition, doubtless arising directly from the extreme care with which the sources of supply are constantly guarded from pollution and the judgment used in cutting, shipping and handling the commodity itself.

Boston's ice comes very largely from waters owned outright by the companies with which the consumer has his dealings. Thus the "crop" can

be carefully watched and kept in condition to develop the best quality, and the "harvesting" and distribution are accomplished at the least practicable expense. It is noteworthy in this connection that the consumer derives his due benefit from all of these things, obtaining excellent ice at a very reasonable cost.

The ice which is furnished to Bostonians is primarily a product of the pure springs and swift running streams which feed New England's ponds and lakes. Much of it is cut in Massachusetts and much more in New Hampshire and Maine.

THE BOSTON ICE CO.—It was in May, 1866, almost thirty-six years ago, that The Boston Ice Co. was established for the purpose of conducting a wholesale and retail ice business in Boston, and in the neighboring cities and towns. Previous to that time, the ice business had been carried on in a somewhat primitive fashion, without organization, and lacking the economical advantage of large operations. With the establishment of The Boston Ice Co. there began a change in the ice business, and it is this company which, by the adoption of systematic methods, and through the courage to undertaking large operations, it has developed the present perfection of the ice-trade, and thus made itself and its product a necessity to the public.

The business of this company has grown to the extent that about seven hundred employees are required to meet the demand of its customers. The main office of The Boston Ice Co. is situated at No. 66 State street, Boston, Mass. Its branch offices are in Charlestown, South Boston, Roxbury, Brookline, East Boston, East Cambridge, Chelsea and Winthrop.

The Board of Directors of The Boston Ice Co. is constituted as follows: Reuben W. Hopkins, President; Frank J. Bartlett, Treasurer; Horace O. Bright, Nelson Bartlett, William G. Peck, James H. Reed, Nathan B. Prescott, Nathan G. Smith, Joseph N. Palmer, Charles Russell and Jeremiah Flanders. The company is capitalized at \$500,000.





# The Electric Car Systems of Boston and New England—Great Changes in Transportation Wrought by Electricity and Motive force.

REMOTE AND ISOLATED VILLAGES BROUGHT INTO PROMINENCE AND IMMEDIATE RELATIONS WITH THE LARGE CITIES—THE BENEFIT OF THE RAPID TRANSIT TO THE MERCHANT—BOSTON'S MAGNIFICENT ELEVATED ROAD SYSTEM.



**E**LECTRIC street railway lines have wrought great social and industrial changes in both rural and urban life in New England. Heretofore remote and isolated villages and towns have been brought into immediate relations with the larger cities; real estate in suburban localities has been vastly increased in value, to the advantage of the rural property owner, and the retail trade in the larger cities, particularly Boston, has received a great impetus.

The merchants of to-day have learned to count upon a great share of their trade coming in from the country by means of the trolley, and as a result the department stores, city grocers and other merchants have been enabled to so increase their selling capacity that prices have been lowered and mutual benefits have therefore been reaped by all. Electric transportation systems in Boston, and all over Massachusetts, have been brought to a high state of perfection, travel thereby is cheap, and it is now only a matter of a few minutes' ride for the suburbanite to reach the city or the merchant to arrive at his country home. The trolley has benefited rich and poor alike as scarcely any other modern invention has done.

## Elevated Roads.

BOSTON'S PIONEER LINES AN UNQUALIFIED SUCCESS.

Half a century ago Bostonians and their suburban neighbors had only omnibuses to accommodate the street passenger business; to-day they have the nearest practical approach to a line of airships; the Elevated Railroad. Then their

way was illuminated by the faint rays of spluttering candles, and warmed with damp straw; now the handsome cars are bright with electric lights and warmed by electric heaters. Then it cost from fifteen to twenty-five cents to journey three or four miles; now a fifteen-mile ride is given for five cents, and three pennies more will extend the trip half as far again.

In its progress during the last fifty years Boston has forged ahead faster in the matter of street transportation than in any other one thing. The first horse car in Boston was run on the Cambridge line in 1856, and thirty-four years later the first trolley car—one of the first in the country it was, too—appeared. The Subway was opened in 1897 and 1898, and the first regular train on which the public could ride passed over the Elevated Road last year. As were the other methods of transportation in their time the Elevated is the most solidly built and perfectly equipped institution of its kind in the world.

The construction of the Boston Elevated Railway was authorized by the Legislature in 1894, but the act provided that it must be built on the plan known as the Meigs system or according to some other plan approved by the Railroad Commissioners, except that it must not be like the system used in New York. The construction of the Subway intervened before anything further was done about the Elevated Road. In 1896 the Meigs charter was bought by interests which had the use of the Subway at their disposal, and the following year the Great and General Court so amended and added to the original act that the restrictions on the plan of construction of an elevated road were removed, except that no



system could be adopted which did not have the approval of the Railroad Commissioners, of course. Locations for tracks and stations were granted and the use of the Subway for operating elevated trains legalized.

Using the Subway for passage through the congested parts of the city, where the streets are sometimes narrow and not always straight was a very great advantage in many ways and the public has much reason to be grateful for, as well as to admire, the whole scheme of the Elevated Road as it was finally adopted and is now in practical, daily use. A speed which would be unattainable by any other device, absolute safety, a degree of convenience and perfection of service which is to be found in no other city in the United States, and the least possible obstruction and disfigurement of the streets, are only its most noticeable good features. The fact that Boston's transit facilities have always kept pace with the most enterprising progress and have often pointed the way to other municipalities, promises that the future will offer only improvement, extension and liberality.

The method of construction of the elevated railway was decided upon only after the most careful investigation, followed by constant tests while the work was going on. It embodies the very best that engineering and railroad experience, added to the lessons taught by years of handling street passenger traffic under the somewhat peculiar and trying conditions which obtain in Boston, could devise. It includes a loop at either end of the line, so that trains may be kept in constant motion without the necessity of complicated switching to start them back from the termini at the completion of the trip, a dip down into the Subway at its northern and southern entrances and the crossing of a river on a two-story drawbridge, the lower part of which accommodates the surface cars and the regular street traffic of teams and pedestrians. Indeed, the first real work on the Elevated was done when founda-

tions for its trestle work were put into the draw, which was built two or three years before the railway.

The Elevated structure is of steel, put together in the sort of lattice design known as open web, and painted a light green. Steel posts, resting on iron bases which are set in concrete foundations sunk ten feet below the street surface, support it, and near the water front piles were driven first of all to give the foundations added firmness. Thus it avoids ugliness, and is perfectly stable. Every part of the work was severely tested from time to time and will bear at least five times the strain that will ever be put upon it. On its lengthwise girders are laid the cross-ties, to which the rails are spiked, guarded on both sides by large timbers

and on sharp curves by steel guard-rails. For nearly its whole length the Elevated runs above lines of trolley cars, the power wires for which are attached to the under side of the structure. The motive power is electricity, which is supplied by a third rail placed at one side of the tracks and carefully insulated.

The cars used on the Elevated Road are much like those used on steam railroads, except that they are smaller and each is equipped

with motors, a controller and air-brake mechanism. While they are commonly run in trains of two, three or four cars, they can be operated independently if it is desirable. As a matter of fact, each car is propelled by its own motor, the power being all controlled from the front end of the first car. In that way the strain and load are divided, and in case the machinery of an individual car should give out temporarily the others could easily share its burden and carry it along "dead." The seats run along the sides of the cars, as in the ordinary street car, and are cane-covered as a sanitary measure. There are doors at the ends and on both sides to make the transfer of passengers easy at the busier stations and during the rush hours.



NEW RIDING CLUB.

*This organization is devoted to good horsemanship. The house is well placed within a few paces of the Fens, which is a favorite exercising ground for riders. It has all the conveniences of a first-class riding school and its arena is 165 x 100 feet.*

*Its membership is limited to 175.*



THE BOSTON ELEVATED RAILROAD.—Probably no enterprise within the last generation has so interested the vast population whose homes are within a radius of ten miles of Boston, as the construction of the L road. Nearly ten years before the starting of the present system there were suggested many plans by which the people of Boston and vicinity could obtain the boon of rapid transit. Among them the question of an L road came in for general consideration. In almost every case there was objection raised to the construction of the road by those who held charters permitting it; to the minds of the general public there appeared to be an open question that there were not enough substantial men behind the scheme to create the impression that the traveling public would be best served. When, however, the Boston Elevated Railway officials took up the matter and took steps toward the formation of a company to construct an L road, the character of the men behind it gave the public confidence. The charter of the old Meigs Co. was purchased, and suitable amendments secured. The West End system was leased, and an elevated road became an assured fact.

Of the building of the road much could be said; its start and completion are well known; but the one most familiar with the active preliminary operations, the Chief Engineer, George A. Kimball, tells a story that is decidedly interesting. Writing of the system with which he has been connected from start to finish, Mr. Kimball said in the *New England Magazine* for July last, "the original, or Meigs, charter, of 1894 authorized the construction of an elevated railroad through the congested part of the city, through some of the principal streets, many of which are narrow and bounded on either side by valuable real estate. To make use of the subway for passing trains through the congested portion of the city would avoid the erection of an elevated structure in these crowded and busy streets, and, with this in view, a system of elevated roads was laid out and completed from Dudley street, northerly through the subway, to Sullivan Square, Charlestown, except a loop on the easterly side of the city via Atlantic avenue, passing the South Terminal Station, and along the water front by the ferries and steamboat lines. The distance from Dudley street to Sullivan Square is 4.9 miles via the subway, and 5.4 miles via Atlantic avenue. There are in all eighteen stations, of which twelve are on the elevated portion and six in the subway. The average distance between stations on the elevated is six-tenths of a mile, and in the subway, one-fourth of a mile. In making the return trip from either terminal, the trains run around a short

loop, thereby saving the time and inconvenience of reversing the trains.

"The elevated structure is built of steel, and the design for the most part is what is known as the open web or lattice girder. It is supported on steel posts, most of which are fifteen inches square. In the narrow streets the structure spans the roadway with the posts on the edge of the sidewalk, while in the wide streets the posts are set in the roadway on either side of the surface tracks. The foundations for the posts are of concrete made of broken stone, sand and cement mixed in the proportion of six, two and one. The foundations begin about ten feet below the surface and average about nine feet square at the base, gradually diminishing in size to the cast iron bases on which rest the steel posts supporting the structure, which are firmly anchored to the foundation by long steel bolts imbedded in the concrete. Near the water front most of the concrete foundations rest on piles which are driven into the ground for a distance of twenty to fifty feet. Some of the foundations were very expensive, owing to the soft material in which they were constructed and also on account of the larger number of underground structures which were encountered, many of which it was necessary to change.

"The first work of construction in a small way was the building of the foundations for the posts in connection with the new Charlestown bridge over the Charles River, in 1898. The first active work of constructing the foundations for the elevated structure in the streets was begun near Dudley street, Roxbury, on January 23, 1899; the honor of removing the first shovelful of earth was given to little William Gaston, then two years of age, the son of the then President of the Boston Elevated Railway Company, and grandson of the late Governor Gaston. The first steel structure was erected on Charlestown bridge on March 30, 1899, and completed on that portion of the line near Guild street on May 31, 1901.

"The steel structure runs for nearly the whole distance over a line of trolley cars. By reason of the large amount of travel in the city streets and the danger which would be incurred in working over live wires, the erection was carried on at night, the surface cars were transferred to other routes, and the wires removed. The posts and girders were completely assembled and riveted at the bridge shops, delivered in Boston on the steam cars and hauled to the site on large trucks. A traveler or derrick was erected on the completed parts by which the posts, girders and other members of the framework were hoisted from the street to their proper positions. On the straight portion of



the line the work was carried on with great rapidity; in one instance twelve spans or 643 feet were put up in a single night.

"The elevated cars are much like those used on steam railroads but smaller, and the general dimensions are practically the same as those of the cars now in use on the New York elevated. On one truck of each car are installed two electric motors, each with a nominal capacity of 150 horse-power. The current for these is taken from the third or conductor rail through the contact shoe which slides along it. The third rail is connected at different points along the line with the electric feeder system, which in turn is connected with the power house. The third rail is laid just outside of the two running rails and rests on insulated supports which stand on top of the ties and is about five inches higher than the running rails. The insulated supports are so constructed as to prevent the electric current from reaching the structure.

"The entire road is provided with an electric-pneumatic system of block signals, by which a train will not be allowed to pass into any section until its predecessor has passed out of it. This feature of the system is similar to that in use on steam railroads, but in addition to the general custom, provision is made so that in case if any reason the motorman should run by a signal set at danger, an arm which at such times projects above the track engages a valve in the brake system, applies the brake and automatically stops the train.

"There is to some extent a popular feeling that an elevated railroad is not as safe as one that runs on the surface, but the figures show that the contrary is true.

"The construction of the Boston Elevated Railway has been carried out on a very broad and liberal basis, particularly in regard to safety. The foundations were designed and built to carry at least five times the weight which will probably ever be placed upon them. The supporting piles were tried by heavy loads to at least four times the amount which they will be called upon to carry, while the concrete was tested by the United States Government at the Watertown Arsenal, and found to be up to six times its load. The specifications for the steel work were very rigid, requiring that samples be taken from each melt of steel and broken in a testing machine, and if found unable to resist a certain strain without break they were rejected.

"The Boston Elevated Railway consists of about seven miles of elevated structure equipped with third rail, and 370 miles of surface tracks equipped with overhead trolley. The tracks are laid in twelve municipalities, and the road serves a population of about 1,000,000 people; it carried 201,124,710 passen-

gers during the year ending September 30, 1900. The surface lines are equipped with 1,538 box electric cars, and 1,442 open electric cars; and the elevated lines with 100 box cars. The elevated division is designed as the express system, the surface lines acting as feeders."

Every safety appliance known to the railroad business is employed on the Elevated, and several which it uses are quite new. The entire system is provided with electro-pneumatic block signals, and as an additional protection there is a device at every signal post which would, if the motorman should for any reason fail to stop when danger was indicated, catch an arm projecting from the air-brake mechanism and bring a train to a stop automatically. There is also attached to each controller an arrangement which would instantly shut off the power if the motorman should become disabled and let the handle go. The cars are partially vestibuled and are enclosed at the openings by iron gates, to keep the heedless from falling from platforms or between cars. Motormen are carefully trained at the company's school before they are allowed to take cars out, and there are men on the platforms of the various stations to watch over the safety of people entering or leaving trains. In general, experience has shown, here and in other cities, that there is no safer mode of travel than an Elevated Railway.

By a system of transfers to the surface cars it is possible to get to any point in Boston or its suburbs quickly, comfortably and economically by the Elevated. The latter is intended for express service with the trolley cars as feeders. At present two divisions of the Elevated are in operation—one from Sullivan Square, Charlestown, to Dudley street, Roxbury, which runs through the Subway and up Washington street; the other a circuit line on which trains are started from Sullivan Square and sent through the Subway, then turned across the city to Atlantic avenue, by which they skirt the water front with its ferries and pass all of the steam road stations, and so brought back to Sullivan Square. The Roxbury route is not quite five miles long and the other is about five and one-half miles in length. There are eighteen stations in all, one-third of them being in the Subway. Those on the Elevated are architecturally neat, easily reached from the sidewalk and conveniently located.

The satisfactory working of such a system of rapid transit as the Elevated Railway demands that passengers shall be handled quickly, and perhaps no feature of the Boston road has more impressed the public than the manner in which this has been managed. Civility and gentleness have been characteristics of the methods used and stood out most



strikingly in the earlier days when the whole experience was an unaccustomed one to travelers and employees alike.

## Street Railways.

### THE REVOLUTIONS IN LOCAL TRANSPORTATION.

When the first click of the telegraph instruments drew continents together an event occurred of great importance to the world, but it was no more significant than the first trip of an electric car. Electricity is the power that annihilates distance and makes the world grow small, and while the trolley cars have not yet scudded under the ocean and thus linked continents together, they have been an all important factor in drawing together the villages, towns and cities of the country, and have entirely revolutionized both country and city life. We have become so accustomed to the trolley cars to-day, along with other marvelous improvements, that unthinking ones hardly realize the changes that have been wrought in methods of travel by the introduction of the electric system, and yet it was only thirteen years ago that cars were pulled through the streets of Boston by horses, the first line having been equipped for electric power in 1899. How odd it would seem to see a car pass down Washington street drawn by a pair of jogging horses! It is probable that this sight will never be met again. The records show that in 1891, two years after the first electric car started there were 10,640 horses employed on street cars in the State of Massachusetts. Every year the number employed became less until in 1900 only 455 horses were in use on street cars in the whole State.

Massachusetts was among the first to boast of electric car lines, and since the very first the progress in constructing lines has been remarkable, until to-day the State is covered with an electric system which connects cities and towns like a gigantic spiders' web. This is particularly true of the eastern part of the State, though Western Massachusetts has several systems which are not surpassed anywhere in the world. To-day there is no county in the State which is not cut through by several trolley lines. Every year sees the completion of new lines, and before another decade has passed away it is probable that the most isolated districts will have been reached in some direction by the trolley.

The effect of all this has been entirely to revolutionize New England life. Villages and towns that were formerly difficult of access, and, although but a few miles distant from Boston, were practically isolated, are now brought into close touch with the throbbing life of a great city, through being connected by a trolley line. There is not a city nor a

town of importance within twenty-five miles of Boston which is not now connected with the greater city by means of the trolley. The changes wrought and the benefits derived have been shared alike by Boston and the smaller cities and towns. The facility by which the rural and suburban population is now brought to the larger centres to purchase their goods has stimulated and increased trade and the merchants have thus derived great advantages. On the other hand, the trolley has infused new life into the dwellers in country towns. Wherever the trolley goes property is increased in value.

Some idea of the extent to which the trolley systems in the State have grown may be gained by consulting the last reports. The Massachusetts street railway companies now own 1,662 miles of street railway line, 251 miles of second main track, and 124 miles of side track, making a total length of track owned 2,037 miles. The increase over the previous year was 192 miles. Back in 1860 there were twenty companies in the State with a total length of main track of eighty-eight miles; in 1889, when the lines were first equipped for electric power, there were forty-six companies and 574 miles of main track. Ten years ago the number of companies had increased to fifty-six with mileage of 672. From that date to the present time the increase in the number of companies and mileage has multiplied greatly as shown by the following figures: 1892, sixty-one companies, 754 miles; 1893, sixty companies, 874 miles; 1894, sixty-eight companies, 928 miles; 1895, seventy-five companies, 1,077 miles; 1896, eighty-three companies, 1,276 miles; 1897, ninety-three companies, 1,413 miles; 1898, 103 companies, 1,537 miles; 1899, 116 companies, 1,735 miles; 1900, 118 companies, 1,913 miles. In other words between 1889 and 1899 the number of new companies formed was 13; between 1899 and 1900 two new companies came into existence. The increase in the number of miles equipped for electric power has been proportionally large. In 1889 only 50 miles of track were equipped for electric power, while there were 523 miles on which horses were used. In 1900 the number of miles equipped for electric power was 1908, while only four miles of horse railway remained in the State.

The total capital investment (capital stock and net debt) of the street railway companies of the State advanced in 1900 from \$68,758,800 to \$77,226,214. In 1888 the total was only \$17,237,100, which shows that the capital investment has more than quadrupled since the introduction of electricity as a motive power. In 1900 the gross assets were \$98,700,075; the gross liabilities, including capital stock, \$95,062,946; the surplus of the companies \$3,637,129, and the percentage of surplus to capital stock 4.22.



The total number of passengers carried during 1900 on the railways of the 118 companies was 395,027,198, an increase of 38,302,985 passengers over the previous year. The total number of miles run by street cars was 81,750,768, an increase of 8,383,533 miles over the previous year. The total number of round trips run was 7,812,427, an increase of 713,584. The average number of passengers carried per round trip was 51, which was one more than in 1899. The increase noted above shows satisfactory progress, but in order to realize more thoroughly the increase it is necessary to look back ten years. In 1891 the total number of passengers carried over street railways was 176,090,189, the total car miles run 27,670,166, and the total round trips run 3,958,455. This shows an increase in 1900 of 219,937,009 passengers carried, 54,080,602 car miles run, and 3,859,972 round trips run.

The average number of passengers carried in 1900 per mile of main track operated was 200,262, and the average number per round trip was 51.

Ten of the 118 railway companies represent 66 per cent. of the entire capital investment, operate 55 per cent. of the total railway mileage, and carry 82 per cent. of the whole number of passengers carried on all of the Massachusetts street railways.

One distinct advantage of the vast increase of street railway companies and the mileage operated, which is commonly lost sight of, is the number of persons who are now given employment. In 1891 6,449 persons were employed on street railways in Massachusetts; in 1900 the number of employees was 12,766, an increase of 6,317, or the number has about doubled.

In 1891 the number of cars run was 3,494, and in 1900 it was 6,531, an increase of 3,040.

An excellent illustration of the comparatively small number of casualties resulting from the use of electric cars is shown by the fact that in 1900 only one out of 21,945,955 street railway passengers received fatal injury, and only one out of 233,054 received any injury whatever; and cars were run on an average over 31,300 miles without accident of any sort to passenger, employee or other person.

BOSTON & NORTHERN STREET RAILWAY CO.—The street railway business of Massachusetts is developing by leaps and bounds, and with the increase in the number of companies operating electric cars, and the radiation of the trackage through city, village and country hamlet, there has come increased population and prosperity of the community in which the “broomstick trains” find their complement of passengers.

Boston is to-day “the Hub” in more senses than

that ironically suggested by Dr. Holmes, for from it run lines of electric cars to all parts of the Commonwealth. The Boston & Northern Street Railway Co., which enters Boston from the north, serves a very large and densely populated territory, including the busy manufacturing communities of Lynn, Reading and Wakefield, and the mill centers, Haverhill, Lowell and Lawrence. This line is the connecting link between the metropolis and the smaller towns and cities through which its cars are operated, and as a consequence its business is constantly increasing, and millions of passengers are carried yearly.

The officers of the Boston & Northern Street Railway Co. are; President, P. F. Sullivan; General Manager, E. C. Foster; Treasurer, J. H. Goodspeed; General Auditor, D. Dana Bartlett; General Superintendent, H. C. Page. The company is incorporated, and its capital stock is \$6,143,000. Its principal business office is at 14 Kilby street, Boston.

Some idea of the scope of the company's business can be gained from the list of the several cities and towns in which the railways operated by the concern have their tracks. They are as follows: Andover, Arlington, Beverly, Billerica, Boston, Chelmsford, Chelsea, Danvers, Dracut, Essex, Everett, Gloucester, Groveland, Hamilton, Haverhill, Hudson, Ipswich, Lawrence, Lowell, Lynn, Lynnfield, Malden, Marblehead, Medford, Melrose, Methuen, Nashua, Newburyport, North Andover, Peabody, Reading, Revere, Rockport, Salem, Saugus, Stoneham, Swampscott, Tewksbury, Tingsboro, Wakefield, Wenham, West Newbury, Wilmington, Winchester and Woburn.

The miles of track operated by the company are 437,178, and on the payrolls are the names of 1,855 employees. During the year ending September 3, 1901, the total number of revenue car miles made by the company was 10,646,538, and the total number of passengers carried aggregated the splendid total of 54,821,850. Since this date monthly reports have shown a most satisfactory increase, and the showing at the end of the next fiscal year cannot but be still better.

The equipment of the roads operated by this concern is modern and up-to-date in every respect, including modern, high-powered cars of the latest type, good roadbed and heavy rails.

The company's equipment included 433 box (or closed) passenger cars, and in the summer months it puts on 627 open cars for the largely increased traffic. During the winter months it has ready for use 148 snowplows for keeping the lines open, and a serious delay in the time scheduled very rarely occurs on account of snow.



OLD COLONY STREET RAILWAY Co.—In the development of South Eastern Massachusetts the Old Colony Street Railway Co. has been an important factor, since its 378 miles of track operated lie in the important cities and towns of Abington, Avon, Braintree, Bridgewater, Brockton, Boston, Dedham, Dighton, Easton, East Bridgewater, Freetown, Fall River, Hanover, Hingham, Holbrook, Hull, Hyde Park, Lakeville, Milton, Middleboro, Middletown, Needham, New Bedford, Newport, Norwell, Norwood, Portsmouth, Quincy, Randolph, Rehoboth, Raynham, Rockland, Seekonk, Somerset, Stoughton, Taunton, Tiverton, Walpole, Westwood, West Bridgewater, Weymouth and Whitman.

The great prosperity and earning power of the Old Colony Street Railway Co. can be traced directly to two principal causes. In the first place, this railway is a direct trunk line from the City of Boston to the prosperous and thickly settled manufacturing and residential communities lying to the south of "the Hub," and its network of tracks makes interurban communication available to mechanic, farmer and business man, while the accommodating time schedule and graded fares have gained for it an enormous patronage, which is constantly increasing.

The car service itself is of the highest class, for the cars are high-powered with an available high speed, and are constructed after the latest models of heavy vestibuled street railway coaches, in which jar, dust and danger are minimized. It is, therefore, possible to run the cars between the towns of

this system at a high rate of speed with perfect safety, and without subjecting the passengers to discomfort.

The officers of the company are P. F. Sullivan, President; E. C. Foster, General Manager; J. H. Goodspeed, Treasurer; D. Dana Bartlett, General Auditor; Robert S. Goff, General Superintendent. The company is capitalized for \$5,777,700, and its principal business office is at 14 Kilby street, Boston.

An idea of the magnitude of the company's business can be gained from the fact that in the operations of its 377,085 miles of roadbed and trackage 1,538 employees are given occupation, while during the year ending September 30, 1901, the number of revenue car miles run by the company's cars was 7,778,747. During this same period the total number of passengers carried by the road was 38,883,546.

The equipment of the company is of the most modern type, and includes 284 box (or closed) passenger cars of the modern vestibuled pattern and 408 open cars for warm weather travel, of which latter there is a great deal during the summer months, during the "open air excursion season," as it has been termed. With the winter equipment of the road must be considered eighty-seven high-powered snowplows, a very essential portion of the rolling stock of a New England Street Railway.

The company is progressive in its policy, and with its opportunities for increased trackage and traffic, may be depended upon to meet the demands which will be made upon it by a constantly increasing population.





# Steam Transportation Which Contributes Unsurpassed Railway Systems and Service in New England States.

THE WONDERFUL TERMINAL FACILITIES OF BOSTON—COMMERCIAL AND  
FINANCIAL SUCCESSES THAT ARE DUE TO THE RAILROADS—THE  
SPLENDID PASSENGER SERVICE—CHEAP FREIGHT RATES—  
FEW TOWNS THAT ARE NOT REACHED BY  
THE STEAM RAILWAYS.



**B**OSTON is the centre of steam railway traffic in New England, its terminal facilities being surpassed in no city in the United States. It is not going too far to say that Boston's commercial and financial importance is largely due to the magnificent system of railroads which bind the East in bands of steel and lead directly to this city.

The equipment of its passenger service, which is admirably adapted to both long distance travel and local needs, is of the highest order, and, similarly, the freight service is such as to encourage transportation, local and long distance, through this centre. The freight rates are cheap and the facilities rapid and complete. The railway systems of New England are remarkable for the manner in which every demand of the territory and a growing population has always been met. Obstacles which at first appeared insurmountable have been overcome in the construction of new roads, and there are now few towns that are not reached in some way by a steam railway. These systems have contributed to make Boston a cosmopolitan centre, as well as the centre of trade and industry in this part of the country.

## Good Public Servants and Good Investments.

For its area Massachusetts has very large railroad interests, and their headquarters are practically all in Boston. Forty-five corporations, doing business wholly or in part in the Commonwealth made re-

turns to the State Board of Railroad Commissioners last year, but only eleven of them operate actively. Among these eleven are the companies which, by lease or contract, operate the other thirty-four, and three of them have 97 per cent. of the total mileage and nearly 99 per cent. of the traffic.

One chapter of the story of Massachusetts railroads it would be hard to find an equal for. During the twelve months covered by this year's reports there were no serious disasters, not a single passenger was killed in a train accident, and but three employees met their deaths in collisions. This keeps up the good record established the previous year. The number of persons injured on railroads was less than two-thirds of the previous year's list, and of those fewer than one-twentieth were passengers, a very much smaller number than in any of the last twenty years. Many were trespassers, or persons who were unlawfully on the tracks. Grade-crossing accidents numbered only about half as many as in 1900, and curiously enough, most of them occurred at "protected crossings," where every precaution for the public safety had been taken, and only the victims themselves could be responsible for what happened. The number of employees hurt was below the average for the last ten years.

This showing is the more remarkable when considered together with the figures of travel. In all, 87,014,642 passengers were carried in Massachusetts during 1901, and they journeyed over a total distance of 1,486,602,603 miles, requiring the services in one way and another of 53,564 employees. These figures the tremendous development of the railroads of the State in a few years tell plainly, for nine years ago they needed but 44,784 employees and the number



last year was an increase of more than 500 over the force of the year previous.

There are now in Massachusetts some 2,107 miles of railroad track, but the Massachusetts corporations own 7,500 miles and operate 9,164 miles altogether. The whole number of miles which trains of all kinds ran over these great stretches of steel was 61,041,881—an increase of more than a million miles, by the way—and they carried 108,758,528 passengers in all. In addition to this, 39,463,814 tons of freight were

protected by every modern safeguard, provided with every known comfort. The average rate of speed compares most favorably with that of railroads in other sections, being far above the usual. The rates of fare and freight transportation charges are of wide repute for their reasonableness.

The "local service" which the Massachusetts railroad companies afford the length and breadth of their territory is most noteworthy, and is the best possible indication of the spirit of the corporations in their



THE SOUTH STATION.

*This is the largest railroad station in the world, and accommodates all divisions of the New York, New Haven and Hartford Road which touch Boston, as well as the Boston and Albany Division of the New York Central.*

handled. This splendid service was carried on with 2,169 locomotives, 3,255 passenger coaches, 33,801 freight cars and nearly 20,000 other cars of various kinds.

Figures are dry, but these give some idea, in a concise form, of the greatness of the work which these public servants perform each year and with what degree of care. The roadbeds and rolling stock are maintained in well-nigh perfect order,

dealings with the public. While of perhaps the greatest general public convenience, the short hauls with frequent stops are in the nature of things least profitable to the railroads, yet nowhere in the country is such accommodation of this particular kind given as in New England, especially, of course, in the vicinity of the large cities. The introduction of "cab" train service—a time schedule which provides numerous trains at short, regular intervals for



suburban travel—and of wonderfully low-priced strip tickets and special rates of transportation for school children and working men, are the most complete developments of the kind anywhere.

Similarly, the freight service is exceptional for its quickness and completeness, as well as its cheapness. The refrigerator cars which are now in universal use were first made possible by Boston enterprise, and many other of the features of modern transportation which make for the safety and wholesomeness of live or perishable property have found their sponsors here, and have been promptly taken up by the railroads of New England. The many advantages offered by the various lines to freight shippers have, no doubt, had not a little to do with Boston's steady rise as an export point.

The terminal facilities are extensive, convenient and well equipped, and are so arranged as to permit of very easy transfer from one to another. The whole process of shipping goods abroad, or even from place to place in this country, has been made a particularly economical one if Boston is employed as the central point. The excellent connections and advantageous exchange arrangements which the several lines have established at numerous places throughout the six States, are another important factor to be considered.

The cheapness of railroad transportation for both passengers and freight in New England makes a remarkable showing in a table compiled by the Massachusetts Railroad Commissioners. The average passenger fare in 1871 was something more than  $2\frac{1}{2}$  cents per mile. Now it is something less than  $1\frac{3}{4}$  cents per mile, a reduction of about 30 per cent., or 1 per cent. a year. The reduction on the five principal lines since 1865 has been 32 per cent. in the average.

Freight rates show an even more startling diminution. In 1871 it cost 3.11 cents to transport a ton one mile. Thirty years later the same service was performed for 1.22 cents. This decrease of 61 per cent. began with a very rapid fall in charges during the first ten years of the period and continued steadily with but slight fluctuations. The four leading railway lines cut their freight charges 71 per cent. from 1865 to 1900. Nonetheless, the income and the profits increased steadily.

An important feature of New England's railway systems is the completeness with which they cover their territory. Wherever there is the demand to justify it they go if it is physically possible, and where insurmountable obstacles to construction interpose themselves, connections by stage or trolley are arranged. The number of towns in the six States which are not in direct touch with the steam

roads in one way or another is certainly very small, and this is especially true of Massachusetts. The railroads have made possible the remarkable industrial development which continues year after year here, and have helped in large measure to retain the reputation of this group of Commonwealths as the finest home section of the whole country.

Under discreet management the companies have beautified their paths where they could, and disfigured them no more than needs they must. Station buildings and their surroundings have been planned with due consideration of both their purposes and their appearance, and the old idea that the "depot" was of necessity an unsightly place has been put out of countenance. The relations between employers and employed have been marked by few misunderstandings, and no serious difficulties have clouded them.

Financially the showing of the Massachusetts railroad corporations is most flattering. It has always been so, and each succeeding year gives promise of increased prosperity, in which the public has a share, through the constant improvements and extensions in the equipment and construction, in train service and traffic rates. Grade crossings are being done away with wherever they can be supplanted by some other arrangement; great viaducts have been built for the approaches to the larger cities, and the adoption of every new device for safe transit which is shown to be practicable is immediate. The construction of two great terminal passenger stations in Boston within a few years—two of the finest, most perfect buildings of their kind in the world—is a fair example of the spirit shown. The consideration of expense has never retarded the forward movement for a moment.

Doubtless it is these facts which make the railways such satisfactory property to their shareholders. The combined capital stock of the forty-five companies represents \$210,305,885.72, the net decrease of not quite \$6,000,000 since last year being accounted for by absorption. On this enormous sum dividends to the amount of \$13,049,306.39 were declared, there being an increase in this respect of \$550,859.48. The total income for the year was \$94,307,564.70, and the total expenditures came to \$93,827,244.19, including the dividends. This left a net surplus for the twelve months, to be added to the surplus account, of \$480,320.51.

The gross debt, funded and unfunded, of all the corporations in aggregate is shown by the recent Commissioners' report to be \$175,111,401.20. The gross assets, when the various statements were



drawn up by the companies June 30 last, were \$419,743,521.23, an increase of \$14,555,191 net. At the same time the gross liabilities figured \$385,417,286.92. This was also an increase, but so slight by comparison that a balance of \$6,146,795 in favor of the assets account remained. The net earnings were \$25,091,995.

In treating the subject of railroads, mention should be made of the steamer lines in which several of them are interested in connection with their train service. A large fleet of the finest of the Long Island Sound steamers are under the management of one; another operates a number of the Lake steamers which are such important factors in many summer outings; a third has close relations with what are probably the most famous river steamers in the country. These great railroads and their connections furnish the means of reaching every part of the United States and its neighbors to the north and south in the speediest possible way, by the shortest routes, most comfortably—luxuriously it would be called in any but this age of luxury—and at the least expense. Transportation is one form of modern progress for which New England may well look to the representatives within her own borders. They have become a standard and an object lesson in all that is best.

**THE BOSTON AND ALBANY RAILROAD.**—The Boston and Albany Railroad which is now under lease to the New York Central Co., is one of the important lines in New England, for it furnishes the most direct route for freight and for passengers between Boston and the principal New England cities, and the West. The Boston and Albany Railroad has long been famous for the excellence of its equipment, the splendid character of its railway stations and the thorough manner in which its business has been carried on, showing great care in the smaller details of providing conveniences and even luxury for the public which it serves, as well as guarding zealously the larger interests and safety of its passengers and freight. Its service has always been first-class and will continue so, for it is the purpose and policy of the New York Central Co. not only to maintain the high standard of the past, but under its liberal plans to make large and constant improvements. The Boston and Albany Railroad has in the past done much to build up the import and export trade of Boston. It was the first company to engage in foreign business, to and from the West, via. Boston, a business that has since grown to great proportions. Boston by reason of this foreign trade has become a great commercial centre, second only to New York. It is the growth of foreign

trade that has emphasized the agricultural and industrial supremacy of the United States, and this trade has been added to a great extent by the possibility of cheaply transporting agricultural products from the West and manufactured goods in the East to the Atlantic ports for shipment abroad. The Boston and Albany Railroad was a pioneer in this commerce. The New York Central, having control of the Boston and Albany, will spend \$2,000,000 in terminal facilities at East Boston. This export trade is supplemented by an import trade of considerable importance. The new docks will furnish accommodations for the largest steamships and it will be possible to handle freight with greater convenience and rapidity. These improvements are required to keep pace with the growth of trade and will be particularly necessary when Boston harbor channels are deepened and widened to accommodate the largest ocean carriers. This expenditure of \$2,000,000 will be of direct benefit to the merchants of Boston and to the manufacturers throughout New England, and, by providing adequate docking facilities, will prove of almost as great advantage in building up the commerce of Boston as the harbor improvements that are now in progress. Every plan that increases the facility of shipment of manufactured goods or the landing of imported goods must always benefit manufacturers in their trade, and prove of vast importance to the industrial welfare of a great many people.

The shippers of perishable freight and live stock in the middle and Western States like to send their freight by The Boston and Albany for various reasons. It is the most direct route to begin with, but another and more important consideration is the fact that there is no delay in the delivery of goods from the cars to the vessels, and besides in the transfer of goods they are not exposed to the varying conditions of the weather. The tracks of The Boston and Albany Railroad run to the wharves where the vessels discharge their cargoes and where they receive the products of this country for shipment. That is why there are no delays and why goods are handled not only with promptness, but also with the greatest safety, and these same advantages which have won The Boston and Albany Railroad its prestige in the transportation of freight, are those which it is the policy and purpose of the New York Central as lessee to further develop and improve.

The facilities furnished by The Boston and Albany and New York Central lines for passenger travel, between Boston and the West, are unequalled. No other railroad is able to provide so well for the traveller in respect to comfort, convenience, rapid transportation and close connections. Fast trains



with sleeping cars and dining cars attached, are run at convenient hours, making connection at Chicago, St. Louis and Cincinnati with the various lines to and from the West, Southwest and South. This enables a passenger on The Boston and Albany and New York Central line to reach practically any point in the country with all the comforts that railroads are able to supply, and without loss of time. An advantage

ests of Boston and of New England, and the lease of The Boston and Albany to the New York Central will undoubtedly prove to be very advantageous to New England, both in freight and passenger service.

The fact is realized that Boston is destined to become one of the greatest commercial ports of the world, that New England will maintain its supremacy in manufactures, and that, with the rapid



THE NORTH STATION.

*This is the Boston terminal of the great Boston and Maine Railroad system, and is used by all the divisions of that road which touch the city. From here all trains which leave Boston for any part of New England north of Boston start. The structure was completed in 1893-94.*

that always interests the people who travel for pleasure is the privilege that this line grants, in connection with all through tickets, of visiting Niagara Falls without extra charge. Thousands of passengers avail themselves of this privilege and thus see that grand and magnificent spectacle. The management of the New York Central lines is always ready to do what it can to advance the inter-

growth of this country's trade in the markets of the world, the progress of Boston and other cities that have great harbor advantages, will continue with even greater rapidity than in the past. With these things in view, it is readily seen that a great railroad company will do well to prepare for larger business so that it may secure a large share of the increased commerce. The management of the New



York Central lines believes in New England, and has determined to share in its glorious future.

THE BOSTON AND MAINE RAILROAD SYSTEM.—In New England there can be found any locality that the vacationist desires—mountains, seashore, inland lakes and beautiful country villages, but whichever is chosen, the visitor will find everything that he anticipated in the way of beautiful scenery, rocky coasts, pleasant harbors, wild mountains, peaceful valleys, gay resorts and quiet country. To all of these The Boston and Maine Railroad System and its tributaries extend. They penetrate to the quiet of rural New Hampshire to the crowded seashore and the beautiful White Mountains and Crawford Notch.

The Boston and Maine Railroad routes lead from Boston to all parts of the White Mountains region. The Eastern route leaves The Boston and Maine seacoast line a few miles beyond the City of Portsmouth, N. H., reaching Mount Pleasant and Fabyan, the heart of the White Mountains, via Ossipee, North Conway, Bartlett, the Crawford Notch and the Crawford House.

Ossipee is a paradise for those who desire the purest of air, delightful mountain scenery, where most excellent accommodations and facilities for enjoyment are afforded.

Another beautiful highland section is that surrounding Lake Winnepesaukee. The railroad almost overhangs the Western side of this Queen of inland waters. The trip about the lake is a revelation, and is a distinctly attractive feature of the country. Northward may be found Plymouth lying near the lower entrance of the Pemigewasset Valley.

Pursuing the main line of The Boston and Maine Railroad northward from Plymouth the route finally touches the Connecticut River. Then swerving to the eastward the railroad follows the course of the Ammonoosuc from its mouth to its source, a picturesque, delightful ride. Within the first few miles after making departure from the Connecticut River, some bustling New England towns are reached.

Those whose ideas of the White Mountains have been derived wholly from the viewpoint of Bethlehem, Fabyan or Crawford Notch have little conception of the beauty and grandeur that gladdens the eye of him who looks upon the Presidential Range from the northern side of the Mountains, which locality is reached by the Whitefield and Jefferson branch of The Boston and Maine Railroad. Randolph, about seven miles from Jefferson, is another growing resort.

An uphill ride of little more than a half dozen

miles from Bethlehem Junction on The Boston and Maine Railroad carries one to the head or entrance from the northward of Franconia Notch, or to the diminutive plateau situated about half way between Profile and Echo Lakes, and within the very shadow of Mount Cannon, whose southerly face presents that curious rock formation known as "The Old Man of the Mountain." Upon this plateau is situated the Profile House. The scenery roundabout, as viewed from the piazzas of the hotel, is of the wildest, most primitive character. Profile and Echo Lakes are beautiful sheets of water, and the latter the home of the pickerel and black bass. The praise continually uttered about this section by distinguished visitors is always without the slightest tinge of disappointment.

The tourist leaving the North station in Boston for the longest all-rail journey that can be taken eastward,—to the shores of Cape Breton—will be charmed with the scenic attractions. That portion of it which takes him through the interior of Maine will have its compensation, while that which lies beyond will abundantly repay him for any possible disappointment. The more fortunate traveller possibly is he who can leisurely visit Cape Ann, Hampton, Rye, Newcastle, York Harbor, Wells, Scarboro and Old Orchard beaches, not to mention the poetic Isles of Shoals, Kennebunkport, Portland, Bath, Mount Desert, St. Andrews and the numerous other resorts that are caressed by the salty waves of Old Atlantic.

The summer resorts of the North Shore, within easy reach from Boston are peopled very largely by a sojourning population, representing the most intelligent and well-to-do classes of the social and domestic life of the country. The first evidence of what may be called cottage life is to be found at Swampscott, which abounds in beautiful villas and summer residences owned by men of wealth and high social position. The Swampscott situation upon the Bay shore is exceptionally fine. Not many miles northward lies ancient Marblehead, occupying a rockbound, primitive shore, overlooking the bay. It is famous as the headquarters for yachtsmen, who annually gather in its beautiful harbor from all parts of the world. Now comes Ancient Salem, sixteen miles from Boston, once the centre for a large East Indian trade. It was the home of Nathaniel Hawthorne. The city has an attraction for every class of visitors in its historic associations and monuments united to its unusually fine natural endowments. Close at hand is the quaint little City of Beverly, near the point of junction with the mainland of the promontory known as Cape Ann. In the extreme beauty of its natural scenery, it must be regarded as the gem of the North Shore. From



Beverly the Gloucester branch of The Boston and Maine Railroad runs from end to end of Cape Ann. This region is one of the great summer parks of New England. Montserrat, Hospital Point, Beverly Farms, Manchester-by-the-sea, Singing Beach, Eagle Head, Thunderbolt Rock, Magnolia is a list of local names of the Beverly summer resorts that suggest all that is enjoyable in summer-time upon the New England shores. The Cape Ann "settlements" include, beside the Beverly sections, the City of Gloucester on the South, Rockport, which occupies the extreme point of the Cape, and Essex holding the same position on the North, with relation to this promontory, as does Beverly on the South. At the northerly point of New Hampshire's seacoast lies the City of Portsmouth.

The historic associations of the Isles of Shoals antedate Plymouth by nearly two score years. They are now as when the De Monts sailed past them in 1605, bare, cragged, seamed, and ocean-washed masses of rocks. The modern sojourner at the Isles of Shoals finds an endless delight in the bracing sea air, the isolation from the outside world, and the wealth of recreative employment and enjoyment at hand.

Kennebunkport nestles charmingly not far from the mouth of the placid Kennebunk River. This place and Kennebunk Beach are two of the most popular shore resorts in all Maine.

Old Orchard, in summer, is certainly one of the most populous resorts in the United States, and it is claimed by its enterprising hotel keepers to be the most popular seaside rallying place on the coast of Maine. It is twelve miles from Portland and one hundred and four miles from Boston. Gaiety is also the watchword at Old Orchard, and sombreness never reigns until the season ends.

The grandest of all the summer resorts of the Northern New England coasts, the Newport of the Maine shores, without question, is Mount Desert. The name is not exactly descriptive since Mount Desert—or the resort so-called—is an island, and the name belongs rather to an extended group of upheavals than to any individual mountain elevation. It is a very popular resort for Europeans.

Until recently Bar Harbor stood for the Ultima Thule of the sea-loving vacationist whose wanderings took him over The Boston and Maine System. Now St. Andrews and contiguous sections of the New Brunswick coast are added to the "Down East" list, then comes Nova Scotia, its Cape Breton continuations, and Prince Edward Island and Newfoundland.

Everywhere in the Provinces the tourist finds scenes and localities worthy of his attention. There are St. John, the land of Evangeline, Digby, Hali-

fax and Yarmouth, all easily reached by means of a first-class railroad or steamship service.

What other section, save one—of North America, can equal New England, in grandeur and impressiveness of the lake system that includes Moosehead and the Aroostook waters; the Rangeleys, Megantic and Parmachenee, Memphremagog, Willoughby, and the Connecticut Lakes; Winnepesaukee, Winnisquam, the Squam Lakes, and the great body of lesser formations that make up the lake system of Central New Hampshire; Champlain in Vermont; and the multitude of forest lakes and ponds that distinguish the Central and Southern New England territory. And what other section of the "States" can be so fittingly described as a "Paradise" for the sportsman. Through this territory the lines of The Boston and Maine Railroad and its connections extend in all directions, reaching into the primitive wilderness and opening to the traveller the delights of this great country.

Of Lake Winnepesaukee volumes could be written, but the highest praise comes from those who annually spend their vacations on its shores. On every side there is a series of summer resorts, superlative in quality, Alton Bay, Wolfeboro, Centre Harbor, and the Weirs. The mountain scenery is superb. Just below Winnepesaukee lies Lake Winnesquam, with the thriving city of Laconia occupying almost the whole of its eastern boundary. It abounds in fish and the winter fishing is an occasion of great merriment.

Sunapee Lake is finely situated on or near the Concord and Claremont branch of The Boston and Maine Railroad.

Newfound Lake lies about six miles north from Bristol, on a little branch line of the "Northern Railroad," a member of The Boston and Maine Railroad System.

The Squam Lakes are the most beautiful inland waters to be found in New England, and the scenery about them is the finest and most varied within this region. An excellent road winds completely around these waters, and the highway leading from Ashland (on the main line of The Boston and Maine Railroad) to Red Hill and Centre Harbor passes along their shores.

Willoughby Lake and Lake Memphremagog are found in the extreme northern part of the State of Vermont, the last named, indeed, lying both in Vermont and in Canadian territory. Willoughby Lake is reached by stage ride for six miles from West Burke on the Passumpsic Division of The Boston and Maine Railroad. This lake occupies a primitive locality—a great gap taking place among the beautiful and impressive mountain heights. Within recent years the fame of Lake Willoughby



has been sounded in all sections by people who have made summer pilgrimages to its situation. The whole section presents scenes of the wildest and grandest natural features. In short, here is a summer resort presided over by Dame Nature herself.

The principal "settlement" of the Lake Memphremagog region is the town of New Port, Vermont, at the far end of the Passumpsic Valley and directly upon the line of that division of the Boston and Maine Railroad. Its shores are rockbound and forest clad, with scattered estates, hamlets and villages on either side, and with government light houses and assistants to navigation. Only about one-fourth of its waters lie within United States territory.

Lake Champlain is situated between the States of Vermont and New York. The lake and its surroundings formed once a theatre for most significant, and often tragic, performances of Indian tribes, who occupied the regions for years. The beauties of the lake can scarcely be exaggerated in description, having elements of majestic grandeur and impressiveness, as well as of extreme picturesqueness.

The chain of six lakes known as the "Rangeley Lakes" lie near the boundary line between the States of Maine and New Hampshire. They are often called the "Androscoggin Lakes" because their connected waters finally drain into or form, the river of that name. Upon their shores are to be found hotels and clubhouses with "camps" and private dwelling places, in which entertainment for visitors and sojourners may be easily obtained.

Moosehead Lake is the largest of the New England lakes east of Lake Champlain. Its surface is about one thousand feet above the sea level and in some portions is declared to be one thousand feet deep. In all parts may be found natural fishing places.

The Fitchburg Division of the Boston and Maine Railroad passes through the beautiful Deerfield Valley and the Hoosac Country. And yet before reaching that western part of Massachusetts, the road covers a stretch of country not many miles distant from Boston, that has beauty of scenery and is rich in historical interest. Waltham, Watertown, Roberts, Stony Brook, Concord, Silver Hill, Lincoln and such places, contain the homes of men of wealth and social prominence, where farming is conducted on a scientific scale. Then there is the town of Sudbury containing the famous "Wayside Inn" made known to the world by Longfellow.

Fitchburg is known as a manufacturing city and yet in its vicinity there are found sources of amusement and pleasure lacking in many more pretentious places. A few miles farther on and the pretty,

elevated town of Ashburnham is reached. Two attractive sheets of water, the Upper and Lower Naukeag Lakes, invite the tourist to enjoy the pleasures of boating and fishing. Watatic Mountain, rising 2,000 feet above the sea level, stand guardian over the whole Ashburnham country. In the surrounding covers is to be found an abundance of small game in the shooting season.

The Cheshire branch is one of the most interesting of the whole Boston and Maine system, skirting as it does, the glorious Monadnock country, the Ashuelot Valley, the Connecticut River Valley and other picturesque sections. Winchendon and West Rindge are favorite summering places. Bellows Falls, 114 miles from Boston, is reached after crossing the Connecticut River, and is one of the most important gateways of Vermont as regards tourist travel.

At this point the Rutland Railroad system carries tourists into the mountainous Vermont country to Lake Champlain.

Returning over the main line of the Fitchburg Division to Winchendon, around and about are many of the prettiest of New England towns. Worcester, with its attractive park system and famous Lake Quinsigamond, is worth a visit. Otter River, Baldwinville and Royalston give way to Athol where the fast trains usually stop for a minute. Nearby are Lake Pleasant, the summer headquarters of the Boston spiritualists, Greenfield, Deerfield and Shelburne Falls, from which point Ashfield and Coleraine are accessible. This romantic section is in the very heart of the Hoosac Mountains.

Now comes the famous Hoosac Tunnel, twenty-four years in completion. The ride through this long chamber cut from the solid rock of old Hoosac is one of the most unique experiences that can be enjoyed by the patrons of the Boston and Maine System. Emerging from the great "bore" the train soon stops at North Adams, the "Tunnel City." From this point, the great western part of Massachusetts is accessible in all directions. Williamstown, Stanford and Sandawga Springs, reached by stage, Pownal, Vt., Hoosick Falls, in New York State, Rotterdam Junction where the Fitchburg Division connects with the West Shore Railroad and other points in the three states are all easily attained.

Ten thousand sportsmen from outside the State fish and hunt in Maine alone each year. The true sportsman does not crave the luxuries of civilization in the wilderness, but he does demand them on the train. In the Boston and Main train service, he assuredly gets all that money can purchase in this respect, and he can nowadays travel from Boston to the very shores of Moosehead Lake, 330 miles



distant, with the same parlor car luxuries as he would enjoy during a run from the Hub to New York or Albany.

The opening up of Washington Country by the new railroad bearing its name had added a large and attractive territory to the devotee of both rod and rifle.

New Brunswick is now as popular in a way with moose and deer hunters as in Maine itself. Quebec is regarded in many respects as the real home and nursery of the nobler type of antler game, and hundreds of sportsmen annually visit it. Nova Scotia including that part of it known as Cape Breton, is popular with many Yankee sportsmen. Lastly comes Newfoundland, which has been opened up to the sportsman and tourist. It is a fascinating and almost virgin territory.

Of course, the State of Maine is, for many years will continue to be, the great objective point of most New England fishermen and hunters. For every outsider who visits the Pine Tree State to shoot there are three who go to fish. Yet in the line of game there is also every species that the Canadian provinces can boast of. There is one part of the State where more moose are reported to have that local habitation than in any similar area in the world. Thousands of deer are killed every year. Partridge, woodcock, quail, duck, geese, plover and snipe abound. Of the more assertive class of sportsman's quarry, there are bears, wolves and wildcats, and of other fur bearing animals mink, muskrat, sable, etc. It's a wonderful State, is Maine!

BOSTON, REVERE BEACH AND LYNN RAILROAD Co.—When the Boston, Revere Beach and Lynn Railroad was completed it came like a "Godsend" to the people of Boston, both in a business and pleasure way. For five cents you can get rapid transit railroad accommodations from Boston to Lynn, to Winthrop and all intermediate stations, and to Revere Beach. It is natural, then, that everybody likes and patronizes this up-to-date railroad, which connects with first-class ferry-boats for single fare. Next year they will run trains every ten minutes from Atlantic avenue station. The officers are Melvin O. Adams, President; John A. Fenno, Superintendent and H. L. Hoyt, Agent. In the summer months the road carries enormous crowds to "Revere Beach," which is a pleasure resort established and supported by the State. Last year the road carried over 6,500,000 of people, and it is estimated that with the additional trains and improved service, over 8,000,000 persons will patronize this road. Trains will be run every ten minutes the coming season. On Labor Day of 1901 the number of people carried was over 25,000. The people get the

best railroad service for the same price as a common street car, and they seem to appreciate it. The road at present has fourteen locomotives, seventy passenger cars and three first-class ferry-boats in service.

NEW YORK, NEW HAVEN AND HARTFORD RAILROAD Co.—Next August the New York, New Haven and Hartford Railroad Co. will have been in existence thirty years, during which time it and the railways which have become component parts of its present great system have had much to do with the growth and the enriching of some of the busiest and most prosperous sections of New England, and with the wonderful development of Boston's importance as a mercantile centre. From an almost local line, operating in practically only one State, it has become a great transporting agent, operating, besides nearly 5,000 miles of track, nine water-routes, including several of the famous Long Island Sound Steamer lines and auxiliary trolley lines.

The capital of the New York, New Haven and Hartford Railroad Co. is \$54,685,400 and its shares are in the hands of some 9,600 stockholders. Since its small beginnings in August, 1872, it has acquired by purchase or by lease the Old Colony Railroad, which before its absorption had come to include the old Boston and Providence and the New England Railroad. So its own lines now cover the whole of eastern Massachusetts and the territory from Boston to Fishkill and Newburgh on the Hudson River, where connection to the West is made with the Erie Railroad. Perhaps the most important short-distance traffic in the United States is that between Boston and New York, and two of the three all-rail routes—those via Willimantic and New London, Connecticut,—are under control of the New Haven road. The third passes over its tracks between Springfield, Mass., and New York.

Although originally a railroad corporation, the New York, New Haven and Hartford controls and operates several very important water-routes. The four great lines of steamers on Long Island Sound which have won the reputation of affording the finest steamboat service in the world are its—one between New York and Providence, R. I.; one between New York and Stonington, Conn.; a third, the Norwich Line, between New York and New London, Conn., and the fourth, the most famous water-route in any country, without doubt—between New York and Fall River, Mass. At their New England termini all of these lines are connected directly with Boston—and so with the whole East—by rail, the car service being of the most



luxurious and perfect kind. In addition to the Sound steamers, the New Haven road runs boats between New York and New Haven and New York and New Bedford, Mass., and, over what is called the New London Line, between New York and New London, Conn., and Block Island, R. I.

Such a tremendous business as is handled by this corporation requires immense equipment and facilities, of course, and at its principal terminals in South Boston, at Fishkill and on the Harlem and East Rivers, New York, as well as at its lesser terminal points, it has enormous freight yards, located just away from the passenger stations that there may be the least possible interference between the two kinds of traffic and the greatest possible convenience to both of them. The requirements at New York are such that the company maintains a line of car-floats for the transportation of freight in New York Harbor, between Jersey City, Pier 50 on the East River, the Harlem River and Oak Point, which makes for speed and economy in transferring cars to and from both West and East.

This is but one development growing from the progressive and liberal policy which the New Haven road has always pursued. Its rolling stock, its roadbed and the safety equipment of its lines, its stations—both at the important junctions and termini and at the smaller points of less consequence—the arrangement of its service, both passenger and freight, are as nearly perfection as ingenuity and generosity can make them. Without compulsion, and for the welfare of the passing public as much as for its own convenience, it has built great viaducts in and out of the larger cities through which its trains pass, has done away with the “blind” and grade crossings which were formerly so terrible a menace to the general safety and has afforded every protection against such dangers as can be guarded against. It has in use the most complete block system of signals which experience and forethought have devised and its cars and locomotives are provided with all possible appliances for safety, comfort and convenience.

These three important elements, with the addition of speed, have each been given due consideration in the arrangement of the New Haven's time schedules. Its limited express service between Boston and New York is model in its way; the fast trains of a more local character are none less carefully equipped nor satisfactorily managed; in accommodation and suburban service few railroads in the country can compare with the New Haven. In a territory so thickly settled and with so many important towns and cities as that through which it passes, this means much. Its trains are run with frequency, its fare charges are low, and for “commuters” are

particularly moderate, and its schedule is adhered to with commendable and unusual exactness but with due regard to safety, always. The same is true of its transportation of freight, which is a most important consideration for a great shipping centre for manufactures and natural products, such as New England is becoming more and more each year. The New Haven road in all of its relations with the public has always shown itself reliable, liberal and fair-minded.

That position it maintains toward its employees, too. The number of them in all the various departments is close to 30,000 and by their efficiency they have had no small share in making the road's reputation as a desirable and worthy public servant. The character of the relations between the corporation and its men tells in the freedom which the road enjoys from labor difficulties and from misunderstandings that become a public annoyance.

The use of electricity on some of the New Haven road's shorter branches—that which runs from Boston to Nantasket Beach and the one between Providence, Warren and Bristol, for example—has been eminently satisfactory and has pointed the way for a new development of local railroad service. Speed, safety and cleanliness have all been attained in the best possible proportion and the company's progressiveness has been shown at every step. The reputation of the various lines of steamers is such as to need no repetition or comment.

Some of the figures set forth in the New York, New Haven and Hartford Railroad Co.'s annual report of June 30 last are very interesting. They show a total income of \$12,646,392, the deductions from which leave a balance applicable to dividends of \$4,658,287. During the year four dividends aggregating \$4,294,738, were paid, so that the surplus for the twelve months was \$363,549. The total gross earnings of both rail and water lines for the same time were \$44,295,541. The funded debt was reduced \$300,000. The division of the cost of operating a great railway system is interesting. The maintenance of its way and structures was an expense of \$5,476,464 to the New Haven in the year the report covers, the maintenance of equipment cost \$9,924,539 and the expense of conducting transportation was \$17,163,880.

The public service which this railroad rendered from June, 1900 to June, 1901, is best described, perhaps in the traffic figures given. They show that 53,051,460 passengers were carried an average distance of not quite eighteen miles; which is as if 949,079,966 passengers had been transported a mile each. In the same way, 15,436,435 tons of revenue-earning freight were taken over an average of 83.72 miles a ton, making the equivalent of 1,292,-



378,364 tons hauled a single mile. Passenger trains ran 13,898,315 miles, freight trains 5,969,950 miles and mixed trains 239,667 miles, which, adding the distance covered by switching, construction and other trains makes a total train mileage of 25,802,941.

The directors of the New Haven road are: William D. Bishop, Bridgeport, Conn.; Joseph Park, New York; Chauncey M. Depew, New York; Henry S. Lee, Springfield, Mass.; William Rockefeller, New York; Leverett Brainard, Hartford, Conn.; J. Pierpont Morgan, New York; George Macculloch Miller, New York; John M. Hall, New Haven, Conn.; Charles F. Choate, Boston; Nathaniel Thayer, Boston; Royal C. Taft, Providence, R. I.; Charles F. Brooker, Ansonia, Conn.; Carlos French Seymour, Conn.; George J. Brush, New Haven; I. De Ver Warner, Bridgeport, Conn.; Arthur D. Osborne, New Haven; Frank W. Cheney, South Manchester, Conn., and Hon. Edwin Milner, Moosup, Conn.

Its principal officers are: John M. Hall, President; William D. Bishop, Vice-President of the Board; W. F. Merrill, First Vice-President; Percy R. Tood, Second Vice-President; William E. Barnett, Third Vice-President; Fayette S. Curtis, Fourth Vice-President; W. D. Bishop, Jr., Secretary; Wm. L. Squire, Treasurer; H. M. Kochersperger, Comptroller.

## Comfort in Travel.

NOWHERE ELSE ARE THE NECESSITIES AND COMFORTS OF THE SOJOURNER SO WELL LOOKED AFTER.

Asceticism seems not to have been one of the cherished heritages from the Puritans, for nowhere in the world are the personal necessities and the minor comforts of travelers more carefully or satisfactorily looked after than in New England. Its railroad restaurants are known all over the country for their excellence, and the news service, in all of its branches and departments, both on trains and at stations, is complete and efficient. So well are both regulated, that they have become an unconscious

part of the wayfarer's life, most appreciated when he goes into other less favored regions.

On this particular side of railway service nothing has been overlooked. The business was early of establishment, and has always kept a little in advance of expressed demand, introducing new features without waiting for the public to cry for them, and in many cases pointing out to travelers ways in which the unavoidable tedium and discomfort of long journeys might be largely relieved by furnishing the relief in a complete form and unobtrusive way.

It is characteristic of the people of this section of the country that what is offered them must be of the best and must be offered in the best way and at fair cost. Under such an influence the results which everybody who travels in New England knows so well have come about and will be maintained.

THE G. W. ARMSTRONG DINING ROOM & NEWS Co.—There is not a traveler in New England, probably, who has not owed many comforts when away from home to The G. W. Armstrong Dining Room & News Co., which controls and operates the train and station news service and the station dining rooms on the lines of the Boston & Maine, Boston & Albany and Boston, Revere Beach & Lynn Railroads. The company was established in 1865 by the late George W. Armstrong, and was one of the first, as it has always been one of the most efficient and satisfactory institutions of the kind in the country. It overlooks no necessity nor convenience, no comfort, nor pleasure. It supplies the best of everything. It is unobtrusive in its methods, but without thrusting itself upon the public seems always at hand to be of service. Its organization is well-nigh perfect.

The great business which Mr. Armstrong built up so successfully was incorporated last May with \$100,000 capital. The President of the company is A. C. Ratschesky, and Edward E. Smith is its Treasurer and General Manager. It employs more than 250 persons, and has its main office at 78 Utica street, Boston.





# The Great Steamship and Sailing Vessel Lines that Connect the Seaports of the World with New England.

BOSTON THE SECOND PORT IN THE WORLD IN THE COMMERCIAL IMPORTANCE—SHIPPING INTERESTS THAT HAVE GROWN TO MAMMOTH PROPORTIONS — THE STEADY INCREASE OF EXPORTS AND IMPORTS—THE NUMBER OF SHIPS IMPROVES EACH YEAR.



**B**OSTON'S port is now second only to one in the country in point of commercial importance. Boston is the natural distributing centre of New England and is the headquarters of so many great importing houses in all branches of trade that it is not strange that its shipping should have grown to such great proportions. Time was when the port of Boston was supreme in the continent, but with the growth of the country other ports developed trade and for a time local shipping was eclipsed. But during the past twenty-five years it has been steadily regaining ground lost in the middle of the past century, and now bids fair once more to become the great port that it was of old. Steamship lines are now running from Boston to nearly every port in the world, and the exports and imports of recent years have been steadily increasing in volume and importance. Every year sees an increase in the number of ships which enter and clear in Boston Harbor.

## Boston the Second Port of the United States.

Boston's port is the second in size in the country in point of commercial importance, therefore its shipping interests are so vast that it is extremely difficult to give even an outline of their history and present day standing within a brief space. A volume might well be filled with the story of the city's origin and development into a great commercial centre and shipping point.

Boston is rightly proud of her shipping, which has had an immense growth within the past quarter of a century. It seems all the more marvelous when its humble origin is considered.

It was in 1630 that the city was founded, and within a year from that date the pioneer of Boston's great shipping fleet was launched upon the waters of the Mystic. The date of the launching of this vessel, which was named the "Blessing of the Bay," was July 4, 1631.

It is learned from the records that the ship was of 30 tons, and built by Gov. Winthrop. When she glided from the stocks to the water the history of Boston's shipping was begun. There is no doubt that the venture proved a success from the first, for it is recorded that within a brief period the "Rebecca," a vessel of sixty tons, made a trip to Narragansett Bay and brought back a cargo of corn which was purchased from the Indians. Next she made a voyage to Bermuda and returned with a cargo of limes, oranges and potatoes. In 1641 commerce was begun with the Isle of Sable which supplied the early settlers with walrus teeth and oil.

The year following considerable trade with England was carried on, pipes staves and produce being brought back in some quantities. During the year 1642 ten ships sailed for the ports of the mother country. In the same year a cargo of wine and sugar was imported from Madeira. The Trial sailed from Boston in 1643, for Fayal, laden with pipes staves and codfish and bringing back cotton, sugar and wine. As Boston began her manufactures in 1644 that year was one of great progress. Her coast-



wise trade was extended and many raw materials were imported from Barbadoes.

After commercial relations were established with the Dutch in New York and Delaware, the *Trial* made her first voyage to Spain in 1645 and on her return was accompanied by eleven ships from England with cargoes of linen, woolen goods, shoes, wheat, rye and pease. In the same year the export of cereals was begun and vessels with greater tonnage were introduced. One of these was the *Scaforth*, of 400 tons. It was at this time that England made an attempt to curtail the commerce with the colonies, but this effort was successfully combated by Boston's merchants, who were even then remarkable for their perseverance, and the city's foreign trade was constantly extended and by the end of the seventeenth century considerable commerce was carried on with Virginia, the West Indies, Great Britain, Portugal, Spain and Maderia, the imports being fruits, wines and manufactured goods.

Docks and wharves were constructed, Long Wharf being the first (1710), and extending 1,800 feet into the sea and containing seventy-six warehouses. It is

recorded that by 1740 forty vessels were on the stocks at one time, with an average of 7,000 tons.

There seems to have been a temporary check to the city's trade shortly after that time, as well as at the close of the Revolution. The sea otter fisheries gave a fresh impetus to Boston's commerce and her ships were soon making long voyages, which included Oregon, China, Valparasio and England. In 1790, 455 vessels entered Boston Harbor from abroad and 1,200 coastwise craft entered the port in that year. It seems incredible, but it is true, that in one day in 1791 seventy vessels cleared Boston Harbor, bound for all parts of the world.

The wars of Napoleon seriously disturbed the maritime commerce of the New World and Boston's port suffered, but at the conclusion of the wars trade was resumed and soon became extraordinarily active. During the period between 1820 and 1840 Boston's commerce by sea was probably proportionally the greatest in her history, and by 1840 her packet and clipper service was acknowledged to be the best in the world. From 1838

to 1846 the *Sirius* and *Great Eastern* plied between Boston and Great Britain. In 1840 postal steam



OLD NORTH CHURCH.

*The original building, reproduced in the present structure, was the church of the Mathers—Samuel, Increase, Cotton and Samuel, the son of Cotton. This is the church which the British troops tore down and used for firewood one hundred years later during the siege. Story has it, though history does not verify it, that it was in the tower of the North Church that the lanterns which warned Paul Revere were hung.*



communication was established between this country and Great Britain.

After 1848 other ports in the New World began to increase in importance, and from that time foreign commerce with America was divided, the period between 1860 and 1870 being a particularly dull time for Boston.

But Boston's shipping was only temporarily eclipsed, for in 1870 the value of the cotton exports was \$135,000, which in 1880 rose to \$7,500,000. In 1871 there were 126 steamship entries with tonnage of 184,798, and 68 clearances with tonnage of 49,789 in the port of Boston. In 1885 there were 522 steamship entries with tonnage of 740,924, and 438 clearances with tonnage of 622,736 in the port of Boston. In the year 1886 the entries were 555 American vessels of all classes, with aggregate tonnage of 254,697, and 2,092 foreign vessels with tonnage of 1,003,827. The clearances for that year were: American, 617 vessels, with tonnage of 262,317, and 1,967 foreign vessels with tonnage of 824,368.

The authentic records of the Boston Chamber of Commerce, in regard to shipping date from 1860, when New Orleans as the port of the South took the position next to New York in importance. At that time Boston's trade totalized \$54,534,575 annually.

The quinquennial reports show that, with the exception of the period of the war, when every port suffered in like manner, Boston has shown steady progress. In 1880 she took second place, and every year since her hold on that position has grown stronger. So vigorous and stable has the growth been that her figures for 1895 show an increase of \$18,315,704 over those for 1890, although each of the five other large ports, New York included, suffered a considerable falling off. The growth has been as follows: 1860, \$54,534,575; 1870, \$61,661,274; 1880, \$127,741,477; 1890, \$134,078,610; 1895, \$152,394,314; 1900, \$192,608,536.

A decrease in exports in 1900, due to a scarcity of ocean tonnage, was so far offset by an increase in imports that a net gain of \$2,093,403 over 1899 resulted. But to the direct foreign trade should be added the "intransit and transshipment" trade which passed through this port during the year, amounting to \$10,226,099, giving a total of \$202,834,635. This does not include \$2,091,403 in merchandise received at Boston and forwarded to interior points without appraisement.

The exports of iron and steel and manufactures increased, in 1900, 30 per cent. over 1899, and of cotton and manufactures 100 per cent. The imports of iron and steel and manufactures increased similarly 50 per cent., and of wool 100 per cent. Boston leads the rest of the country in the shipment of live

cattle, 112,868 head having been exported in 1900. This pre-eminence is due to the lower percentage of loss on shipboard of animals sent from Boston—.145 per cent. of cattle against .24 per cent. from all United States ports. The loss of sheep is but .282 per cent. from Boston as compared with .71 per cent. from all other ports.

The arrivals of vessels in the coast-wise trade show a continual and satisfactory increase. This important factor is another of Boston's strongholds. She is credited with 10,436 arrivals representing a tonnage of 8,244,860, or a total tonnage in and out of 16,489,720. Her closest competitor is New York, with 9,016 arrivals and an estimated tonnage of 7,122,640, or a total tonnage in and out of 14,245,280.

It is interesting to note the number and variety of craft that entered and cleared in Boston Harbor during the year 1901. According to the records of the Custom House there were 219 American vessels of all sorts, and 1,604 foreign that entered the harbor during the year. Of the American craft 134 were steamships with an aggregate tonnage of 170,680. The number of foreign steamships to enter was 940, with a total tonnage of 2,175,835. The next in order were schooners of which 59 were American with tonnage of 19,564, and 631 foreign with tonnage of 2,175,835. The other ships to enter were as follows: Barques, American 23, tonnage 17,150; foreign 17, tonnage 15,683; brigs, American 3, tonnage 1,003; foreign 13, tonnage 2,297; ships, American none, foreign 3, tonnage 4,618.

The vessels that cleared during the year 1901 were as follows: Steamships, American 135, tonnage 164,550; foreign 866, tonnage 1,904,089; schooners, American 143, tonnage 51,206; foreign 601, tonnage 61,743; barques, American 18, tonnage 12,925; foreign 12, tonnage 9,087; brigs, American 6, tonnage 2,091; foreign 12, tonnage 2,166; total American 302, tonnage 230,772; foreign 1,433, tonnage, 1,979,914.

But the above figures do not represent the actual number of vessels to enter and clear Boston Harbor during the year 1901. Vessels which first touched at some other port and then came to Boston were not included in the above lists. The actual arrivals and clearances for the year 1901 were as follows: Arrivals, coastwise, 10,415, with gross tonnage of 8,724,118; foreign, 1,957; total, 12,372; from Southern ports, 6,280, with tonnage of 6,115,381, from Eastern ports, 1,218, with tonnage of 2,608,737. Clearances, coastwise, 2,141; foreign, 1,824; total, 3,965.

Steamships sailing to foreign ports were as follows: Liverpool, 172; London, 70; Glasgow, 24; Hull, 18; Bristol, 14; Antwerp, via Baltimore, 19;



Rotterdam, 23; Hamburg, 15; Havana, via Philadelphia and Baltimore, 8; Copenhagen, 17; other ports, 11; total, 391.

DOMINION LINE—RICHARDS, MILLS & CO.—The well-known Dominion Line, the fast twin screw service from Boston to Liverpool, via. Queenstown, and to all the principal ports of the Mediterranean, is represented in the City of Boston by the firm of Richards, Mills & Co., with headquarters at the company's office at No. 77 State street.

The Dominion Line steamers are notable among the ships that sail from this port. Among them are the New England, the Commonwealth, Merion and Haverford. For both freight and passenger service, the rates are reasonable.



*One of the magnificent twin-screw steamships of the Dominion Lines, British and Mediterranean services.*

The Mediterranean service of the Dominion Line is most popular, as it carries passengers to ports of Gibraltar, Naples, Genoa, Alexandria, Egypt.

The new steamer Alexandrian will shortly be added to the fleet of the Dominion Line in conjunction with the Cambroman to keep up the Mediterranean service.

With the addition of the Alexandrian, the completeness of the Mediterranean service is assured.

The other four steamers will sail regularly on Saturdays for Liverpool.

The Dominion Line also sails from Portland, Me., to Liverpool, and from Montreal and Quebec.

Passengers disembarking at Queenstown are landed at the railroad terminal for all points in Ireland. From Queenstown the steamers proceed di-

rect to Liverpool, where they meet a special train for London.

Passengers leaving United States and Canadian ports for London and the Continent will find this service of great convenience.

FURNESS, WITHY & CO., LTD.—The well-known firm of Furness, Withy & Co., Ltd., shipbuilders and owners, was incorporated in 1890. The capital is \$5,000,000, with a reserve fund of over \$2,000,000. The headquarters are in West Hartlepool and London, with branch houses in Boston, New York, Newport News, New Castle, Eng., Montreal, Halifax, St. John, etc. Sir Christopher Furness, the head of the firm, is one of the best known financiers in England. The company owns a large number of steamships, that are among the "finest craft that float," and the service is unexcelled between the seaports of Europe, the United States and Canada, where the company has connections, to which points though bookings are made. The vessels of the Furness-Withy Co. are fitted up in the most luxurious style, with all modern conveniences for the comfort of passengers. The saloon and state-rooms are airy and well ventilated.

The steamers have a handsome ladies' music room, and gentleman's smoking room, all of which are lighted by electricity, and fitted with electric bells. They carry Doctor, Stewardess and a good staff of stewards.

The vessels are fitted with bilge keels, so that the rolling motion which is so disagreeable at sea is reduced to a minimum.

Excellent accommodation is provided for Second-class passengers. The Boston offices are located at 85 Water street.

JOHN G. HALL & CO.—The firm of John G. Hall & Co., 114 State street, ship and steamship brokers and commission merchants, was established in 1842, under the firm name of Ladd & Hall. The present name was adopted in 1865. Since the death of Mr. Hall, in 1881, the business has been carried on by his sons, Herbert C. and Irving G. Hall. In 1897 the firm became agents of the well-known Elder-Dempster Line. Originally the business of this old and reliable firm was done almost entirely with the Provinces of Nova Scotia and New Brunswick. The firm was also agents for many ships owned in the provinces.

FRED'K LEYLAND & CO.—Fred'k Leyland & Co. (1900) Ltd., steamship owners, is generally known as "The Leyland Line," the head office of which is in Liverpool, England, with branches in Boston, New York, New Orleans, Montreal and Quebec. Regular sailings for both passengers and freight are



made between Liverpool and Boston, Liverpool and New York, Liverpool and New Orleans and West Indies, London and New Orleans, London and Boston, London and Quebec. The particular addresses are as follows: London England, 38 Leadenhall street; Liverpool, 27 St. James street; Boston, 92 State street; New York, 24 State street; Montreal, 11 St. Sacrament street; Quebec, 81 St. Peter street; New Orleans, Cotton Exchange Building. Messrs. F. O. Houghton & Co. are the passenger agents in Boston, with headquarters at 115 State street, in the heart of the business district and convenient to all the leading hotels.

"The Leyland Line" owns over 50 steamships, and with the steamers now building and lines recently acquired the company has one of the most extensive businesses of the kind in the public service. All steamers are admirably equipped for the general comfort and accommodation of the company's patrons. Their new and immense steamships are among the finest sailing from Boston. The staterooms are large, commodious and have the best of ventilation.

One of their more recent acquisitions to the service is the steamship "Devomain," which is of 11,000 tons gross and is the largest single screw steamer in the world. Among others are the Winifredian, 10,500 tons; Bohemian, 9,500; Armenian, Certrian and Victorian, of 9,000 tons, and Lancastrian, 6,000 tons. The sign of the solid red flag, which is the flag of "The Leyland Line," is a familiar one to ocean travelers. The service is the

best and rates are very reasonable on "The Leyland Line."

PATTERSON, WYLDE & Co.—There is no more important element in commercial success than the shipping agent, and in these days of foreign trade expansion the steamship agents and brokers play a most important part. It is to enterprising, active concerns of this kind, such as Messrs. Patterson, Wylde & Co., of 102 and 104 Chamber of Commerce, Boston, that many of the opportunities of getting into the foreign markets economically, promptly and efficiently are to be credited.

The first day of the new century saw the launching of Patterson, Wylde & Co. as a firm, though both partners had had many years of experience in their line of business. They took over then the business of William Johnston & Co., Ltd., who had been in Boston since 1889. Mr. Charles Campbell Patterson, of the new firm, was manager for Messrs. Johnston & Co. from 1889 to 1894 and Mr. John Wylde, his present partner, held the same position from 1895 to 1901.

Messrs. Patterson, Wylde & Co. are agents for Messrs. Johnston & Co.'s business and also for the Hamburg American Line, which is doing a large and increasing business between this point and Hamburg, Germany. They load every month two steamers of about 7,000 tons burden which sail directly to Hamburg. They also send an occasional Hamburg American liner to Emben, Germany.





# General Electrical Advance, and the Remarkable Improvements Wrought by Electrical Engineers and Skilled Mechanics.

THE STATES OF THE MAYFLOWER'S LANDING TURNS OUT VAST NUMBERS OF EXPERTS IN THIS SCIENCE—BOSTON THE HEADQUARTERS OF MANY, AND THE CITY'S PLANTS CONCEDED TO BE THE BEST—EXPERT ELECTRICAL AND SUPERIOR MECHANICAL GENIUS.



**T**HE natural law of sequence decreed that New England, and particularly Boston, should occupy a place in the very front rank in the march of electrical achievement. Boston is the home of great technical institutions, and has turned out an army of men who are working in the electrical field to-day. This city is also the headquarters of many great electrical experts, and their knowledge and practical experience is demonstrated by Boston's electric lighting plants, universally conceded to be the best in the world, and other admirable electrical systems.

In the same line comes electrical machinery. Expert electrical training and superior mechanical genius have combined to produce in this State electrical machinery which is not only adequate to the needs of the rapidly developing science of electricity, but is the equal if not the superior of any machinery of its kind in the world. One hears repeatedly that electricity is yet in its infancy, but when one looks about and witnesses the achievements of the electrical engineers and sees the mechanical wonders which their work has made possible, it almost seems as though the limit had been reached. But they say they will do much more.

## By Electricity.

BOSTON FURNISHED WITH LIGHT, HEAT  
AND POWER.

Nature's greatest force, electricity, has been brought to its highest state of usefulness in Boston. Not content with simply keeping abreast of what

has been done in other places, the companies which furnish the inhabitants of this city with the "force of modern magic," as it has been called, have built the finest plants in the world, have employed the newest devices and adopted the best regulated and most satisfactory system of public service to be found anywhere. And their growth has been according to their merits—healthy, constant, lasting.

For many years Boston has been looked upon as the best lighted city in the world. That is, in itself, saying much for the electric light companies, for the municipality covers a very large area—35 square miles, or thereabouts—and many of the streets in the older section are narrow, crooked and difficult to illuminate. The reputation extends beyond street lighting, though, for there are few places where arc and incandescent lamps are in such general "commercial" use as they are in Boston. Besides the important service of lighting the city, electricity is furnishing heat and power more extensively every year, and the wonderful progress in the various applications of its mysterious energy has developed an enormous business in an almost unbelievably short space of time.

It is less than twenty years since electric lighting came into general use. Boston was among the first cities to take it up, and her peculiarly advantageous position in electrical engineering, and in what is best described as the expansion of the whole science of electricity, has kept her far forward in the procession of modern advancement. What were modest innovations seventeen or eighteen years ago are now great plants, which have cost millions of dollars



and are doing millions of dollars' worth of work. Every year has seen the extent of their usefulness increased, their business multiplied and their plans broadened. Their prosperity is built upon the excellence of their accomplishment.

Nearly nine million dollars is invested in the two great corporations which supply Boston with most of its electricity, and their combined yearly income is, in the gross, in excess of two and a quarter millions. Their plants alone have an assessed valuation of six and a half millions or more, and they are being constantly added to. They have a combined dynamo capacity of 275,340 lamps of 2,000 and 16 candlepower, and are furnishing power for between three and four thousand motors requiring upward of 14,000 horse-power altogether. Close to 3,000 "public" lamps and more than 4,000 "commercial" lights are supplied with illuminant regularly.

The central power station which generates the current for practically all of the street lights and for many of the others is considered the finest establishment of the kind in the world. When it was built, two or three years ago, it took the place of what was at the time considered a large and well-equipped plant which had long been overtaxed to keep up with the increased requirements it had to meet. Every improvement which was known to electrical science was embodied in this model station, and many contrivances for safety, convenience and better service were invented and first constructed to make it complete.

Almost the same may be said of the newer stations of the other great electric company. Beside the three plants where light and power are generated it has a like number of "battery plants" in

auxiliary stations which not only serve as reserves in case of accident, but help to relieve the load put upon the main establishments and to economize to the utmost loss by transmission of the current over long distances. These sub-stations have proved of great value in the outlying districts of the city, and have been so arranged that the present facilities should be able to handle any normal growth in the company's business for some time to come.

Several years ago it was provided that all elec-

trical wires in certain districts of the City of Boston should be laid in conduits underneath the pavement. Then the area which the companies covered was somewhat constricted and the underground wiring was put in without much inconvenience or disturbance. With a foresight which is too often lacking in such matters, the possible future demands upon the conduits were considered then, and there has resulted a happy immunity from obstructed streets and gaping excavations, while the service has grown to many times its original proportions. As new circuits were



BOSTON ART CLUB.

*This organization was founded in 1854, and was reorganized on its present basis in 1870. Its regular exhibitions are prominent features of the art year of Boston. Its social side is by no means subordinated to its devotion to Art.*

added in thoroughfares which had before been without electric wires, conduits were built for them, so that now there are no overhead lines, practically speaking, yet no section of the city need go without electricity.

Some of the figures in the last report of the Gas and Electric Light Commissioners give an idea of the remarkable extent to which Boston is supplied with electricity. The two principal companies have a total of more than 1,900 miles of wires, of which length one-half or thereabouts is stretched in the 140 miles of conduits beneath the city's streets. Neither is reported as having any wires on poles



above the ground. The advantages which led to the installation of conduit system are, of course, familiar by reason of frequent repetition. They have been especially apparent in the light of the fact that no storm, however severe, has ever interfered with the city wires, even momentarily, since the plan was adopted, and the danger of accident from disarrangement or broken wires has been reduced to practically nothing.

In every respect the equipment of these great companies has been kept up to the highest possible standard. New models of lamps have been introduced as soon as they have shown advantages over old ones, every mechanism which would insure steadiness of light and uniformity of current has been adopted, and the consumers' convenience and advantage have never been neglected on any pretext. The companies decline to furnish a current for any purpose in a building, the wiring of which is not in accordance with the standard established by the fire underwriters.

The next service to be taken up after lighting was power. Very limited in its field at first, this has come to be an important item in the business of supplying electricity and one which is growing rapidly. Many elevators in buildings where the necessary plant for other means of operation is, for one reason or another, undesirable, are run by electricity now, and a great many of the smaller manufacturing establishments receive all the power for moving their machinery on the wires of the electric light companies. The most modern plants of larger size are now fitted with an individual motor for each machine to avoid the disadvantages of shafting on some premises and in some circumstances, and they are supplied with power in the same way. The minor uses to which the lighting company's currents are put by the professions are almost innumerable in this day of electrical instruments and mechanisms.

The most recent invasion of electricity is into the field of heating. It has, for some time, been used to warm public conveyances, which were run by motors, of course, but its introduction into the home and into buildings of every kind, in fact, as a substitute for fuel of one sort and another, has come about lately. The possibilities for extending this side of its work are seemingly unbounded. Heaters were the first innovation, and they have undergone the same marvelously rapid improvement that all electrical devices have in the last few years until now they are recognized as having reached an eminently satisfactory state, where they perform their function efficiently and with great convenience and not too great expense.

Not the least interesting or useful purpose to which electricity is now put is the supplying of heat

for cooking. This is its newest field of operation and its cultivation has called forth great ingenuity and skill. All manner of "hot plates" and ranges have been put upon the market, and they have been well received and have proved their worth now by the test of constant use. The advantages of ease of operation and of cleanliness and safety are claimed for them and have won them considerable popularity where they are known. Although a distinctly new idea, they have made their way fast and their scope is being widened and their working perfected more and more all the time.

A feature of the service which the Boston Electric Companies give is that the same current may be used for any purpose. That is to say, wires originally installed for lamp connections are capable of supplying sufficient electricity for power for heating or for cooking, and the change from one use to the other can be made easily and quickly. On the whole, no city is better served by its electric companies than is Boston.

**THE BOSTON ELECTRIC LIGHT CO.**—The manufacture and sale of electric current for light, heat and power is an important, though modern industry. Electricity enters into almost every other industry in one form or another, and has become so essential in the various departments of life that the State has come to regard these concerns which supply electricity as quasi-public corporations. One of the greatest of these corporations is The Boston Electric Light Co., which was established in 1888. This company is capitalized at \$3,000,000 and conducts a business which requires the employment of 235 regular men, besides 100 street laborers. It supplies from its stations, currents for the illumination of a great many private concerns and business enterprises in Boston, besides furnishing electricity for power and heating purposes.

The officers of The Boston Electric Light Co. are: President, E. B. Maltby; Vice-President, I. T. Burr; Treasurer, S. S. Sias; General Manager, Sidney Hosmer; Auditor, L. M. Wallace; Directors, E. B. Maltby, I. T. Burr, S. S. Sias, E. Henry Barnes, W. M. Butterfield, C. L. Lovering, Chas. Lowell, E. W. Burdett and W. A. Paine.

The main office of the company is in the Ames Building, Boston, Mass. Its operating offices are at No. 50 Ferdinand street, Boston, and it has stations at the corner of L. and E. First streets, South Boston, and on Condon street, East Boston.

**THE EDISON ELECTRIC ILLUMINATING CO.**—The Edison Electric Illuminating Co., of Boston, was organized December 26, 1885, with a capital stock of \$100,000, which included the payment of \$35,000 to the Edison Electric Light Co., the parent com-



pany, the license rights under the Edison patents. This contract limited the operations of the company to an area of about seventy acres in the business center of the city, almost directly surrounding what is now the first district station of the company. To-day the company is capitalized for \$7,102,700, employs 700 men and its service is to be obtained in almost any part of Boston. The right was given under the first contract to extend over the entire City of Boston or any part of it on equitable conditions, and the corporation has taken advantage of that right.

At first, the company adopted the policy of free wiring for customers, and it was not long before the capacity of the first plant on Head Place was tested to its utmost capacity. At the end of six months the capital stock was increased to \$250,000, and work was commenced on a new building adjoining the old one on Head Place.

This station in Boston was probably the first power station in the world, as previous to this time there is no record of more than one or two motors being operated from a single plant, while this Boston station in the latter part of 1887 was supplying current for ninety-two motors. Later on motors were run on the outside wires of the three-wire system, this company being the first one to adopt this system of power transmission.

Business advanced by leaps and bounds, so rapidly in fact that from time to time it was necessary to make still further additions to the company's equipment or construct new stations, and these followed one another so rapidly that there was but a short interim between the successive additions. In June, 1887, the capital was increased to \$500,000, and a new district was opened between Tremont and Washington streets as far north as Bowker street.

On December 21, 1887, the second district station from Hawkins to Bowker street was started. During this year the company began to abandon its overhead system of distribution, and about ten miles of three-wire underground tube was laid. During the summer of 1890 the Head Place plant was again enlarged, and ample office room for a few years was provided.

But, business still increased and Mr. Edgar of the company visited Europe and thoroughly investigated the subject of station buildings, types and size of units employed, and modern electrical generation and distribution. The result was the company's third district station on Atlantic avenue on the site of the old "Tea Party Wharf," with its triple expansion, vertical condensing engines, to which were coupled direct driven generators. These slow speed vertical engines were the first built on this side of the water, and the direct

connected units were among the first in the history of the business.

In 1893 Mr. Edgar again visited Europe to investigate the subject of storage batteries as auxiliaries to large central stations. The use of the storage battery in this connection recommended itself so highly that a trial plant was installed in March, 1894, at the third district station on Atlantic avenue, the first of its kind in this country. Although looked upon with some misgiving by electrical engineers it soon proved its worth.

Then followed another period of development. A second battery plant was installed at Head Place, and this was followed by the building of the fourth district station, consisting of a battery plant, on Scotia street in the heart of the Back Bay. This was in August, 1896.

In September, 1897, a storage battery was installed in the second station on Hawkins street, and in August, 1898, a storage battery was put into commission in the fifth district station on West Canton street. In September, 1900, another battery was placed in the sixth district station on Pittsburgh street, in South Boston, thus covering a district previously supplied by means of a submarine cable across the channel.

In March, 1900, a large addition was built to the company's Atlantic avenue station, the wharf was extended out to the Harbor Commissioners' line and modern coal handling machinery installed. This addition to the latest station has so increased the capacity of the system that a natural growth of the company's business can be handled without additional building for some time to come. The engine equipment of the Atlantic avenue station consists of four 660-hp. vertical triple expansion engines, each driving two 200-kw. generators; one 1,200 hp. engine driving two 400-kw. generators; two 1,200-hp. engines, each driving one 800-kw. generator, and two 2,400-hp. engines, each driving one 16-kw. generator.

About fifty-three miles of the street in Boston are covered by the underground system of the company, consisting of mains, feeders, etc. Edison incandescent lamps are used on the system, there being connected the equivalent of some 250,000 16-cp. lamps. About 2,509 arc lamps are also connected to the incandescent circuit. The motors on the system vary in size from 1-16-hp. to 100-hp., with an aggregate of 10,500-hp.

In addition to the current distributed for ordinary commercial and lighting purposes, the company is making a specialty of electrical appliances and apparatus for the use of electricity in a domestic way, for cooking, heating and other home purposes, and in the office at the Head Place station a very inter-



esting and instructive exhibit of this class of electrical appliance is shown.

By the three-wire system of this company it is claimed a current of killing force cannot be taken from one of their pieces of apparatus for domestic use, and with their liberal inducements to customers there is little doubt but that electricity will soon assume a most important part in the domestic side of daily life.

## Electric Wonders.

### THE MANUFACTURE OF ELECTRICAL MACHINERY AND SUPPLIES.

As New England has always been among the first to seize upon Nature's forces and turn them to practical advantage, and as the uses of electricity have been developed here to their utmost, it is not strange that the making of electrical machinery and supplies should have attracted the Yankee mind, always keen for invention, and that there should have risen from it a great industry with one of its chief centres still in Massachusetts. For many things electrical the world depends almost entirely upon America, and the products of the great works in one city among Boston's neighbors go to the uttermost parts of the earth.

There is nothing necessary for the generation, transmission and utilization of electricity for light, heat or power which this factory does not make. Inasmuch as no other country is so far advanced as this in the employment of electricity that simple statement means something which is almost incomprehensible to anybody but the expert. The United

States has reached a point where it can not only compete with the foreigner in his own country, but can beat him in the markets of South America and the East, which are but just opening. It is because of the excellence and economy of the American product that this is possible.

The marvelous development of electrical machinery have all come within a quarter of a century. The arc light was first shown as an experiment at the Centennial Exhibition in Philadelphia in 1876, and came into commercial use two or three years later. There were a few incandescent lamps used in 1881, but they were in the homes of one or two millionaires, and it was not until the next year that they made their appearance in public buildings. The first place of that sort in which they were installed was a theatre in the City of Boston. Now

electricity lights not only residences, public buildings and factories, but the highways and the deep tunnels of mines.

The next step in the march of this new force was its employment as a motive power. Street cars have been propelled by it for some years now, and it has replaced steam on several railroads. It turns the propellers of boats and moves the wings of airships. It is, by

degrees, replacing the horse in business and pleasure traction. It moves the machinery of great mills and factories.

It is this latter development which now engages not a little of the electrical engineer's attention. The new system by which each machine in a large plant is run by an individual motor of its own is rapidly spreading. Cumberson and annoying shaftings are avoided by means of it, and only a steam



BOSTON ATHLETIC ASSOCIATION.

*This is one of the largest and best equipped structures of the kind in the country. Besides tennis and hand-ball courts, fencing and boxing rooms, bowling alleys and billiard rooms, a great gymnasium and a swimming tank, it has also all the regular features of a modern club. The members number about two thousand.*



plant sufficient to operate the generator, which makes the current, is necessary. In mines, where it is difficult to conduct steam-power, electricity is made of great value for running drills, and it has replaced the traditional mule to a great extent on mine railways.

The general use of electricity for heating is comparatively new, and has not, as yet, become very widespread. Electric heaters have for some time warmed vehicles which had electric motive power, but they have been put into a form convenient for buildings only very recently. They have so many advantages for this particular service, however, that their use is increasing very fast and the time is near when they will be considered as indispensable in the comfortable home as the incandescent light is to-day. The same may be said of the contrivances for cooking by electricity, the latest turn which this most practical of the sciences has taken.

The transmission of currents of electricity over long distances in such a way that they may be efficient and economical at the end of their journey is another problem of recent solution, and it is a long stride in progress. For years after the plan of making electricity at a central point and distributing it to considerable distances suggested itself, no means of successful accomplishment could be found. The loss of power and the cost were the great obstacles. These have been overcome now, though, and in some parts of the country light and power are employed satisfactorily 200 miles from the place in which they are generated.

This only outlines the application of electricity to daily practical use at the present time. The branches and ramifications of each of the departments of utility mentioned are well-nigh innumerable. Each cares for its special machinery and fittings,

all different in detail from each other, and the manufacture of each is a process evolved by expert experience and experiment. No doubt one secret of the remarkable advance in electrical mechanism and its various requirements lies in the drawing together of every process connected with them into one great establishment, which gives opportunity for com-

munity of work. The result of such a combination has, at any rate, been the upbuilding of a wonderful business in which New England takes great pride.

Manufacture seems to have been carried to its ultimate in the making of electrical machinery and supplies. This concern which fashions every minutest detail of any electrical mechanism makes entire plants, for electric lighting, for example, furnishes the equipment for electric roads from beginning to end, constructs any kind of an electrical machine to order and "to measure," so to speak, and installs them all wherever they may be located.

The foreign branches of the great establishments which make American electrical machinery are of increasing importance, and the growth of their business is by leaps and bounds. American motors keep many of the utilities of the continental cities in motion, and it has been reported that London's new electric train system is to have an American equipment. In South and Central America the opening up and development of the various countries is being carried on largely by machinery imported from this country. The Orient seems likely to achieve its future by the same means, and wherever civilization penetrates it finds American progress as represented by its mechanical inventions, among which electrical machinery stands near the top, a most powerful instrument.

GENERAL ELECTRIC CO.—The Thomson-Houston factory of the General Electric Co., situated at West Lynn, is in itself the largest electrical works in New



THE THOMSON-HOUSTON FACTORY OF THE GENERAL ELECTRIC CO., WEST LYNN, MASS.

England, though its capacity is little more than half that of the main shops of the General Electric Co. at Schenectady, N. Y. The Lynn plant covers forty-three acres of ground, eight

of which are utilized for the factories of the West Lynn Works proper, while the remainder is covered chiefly by the steel casting plant and abuts on the Saugus River, being hence known as the River Works. These two plants now give employment to about 4,500 men. The chief products of the West Lynn Works, the floor space



of which is 446,000 square feet, are arc lamps, of which nearly half a million have already been shipped; Thomson Recording Watt Meters, which are used for measuring direct and alternating current in all parts of the world; Brush arc light machines; electric automobile motors, small motors, varying in size from those required for driving desk fans to those which work the heaviest cranes, machine tools or printing presses; street railway motors of various sizes; electric instruments, such as volt meters and ammeters and controllers for economically feeding current to the motors. At the River Works, huge steel castings up to 40,000 pounds are made, and steel gears and pinions are cut by automatic machinery. The floor space of the River Works is 272,000 square feet, making a total manufacturing area for the two plants of 717,000 square feet.

The immense variety of articles turned out at the works may be gathered from the fact that they are made under some 25,000 different specifications. These cover apparatus varying in size from generators weighing 130 tons to the smallest electrical measuring instrument, weighing only a pound or two, but having almost as many separate pieces as the large generator. Moreover the nature of electricity is such that it infallibly puts its finger upon bad or careless workmanship or upon inferior materials. Thus inferior insulation breaks down when the current is turned on, while impure copper or improperly selected iron or steel is detected by the failure of the machine to give its rated output under factory testing with instruments of precision. This necessitates the employment of the highest grade of workmen and the largest amount of professional skill and ability on the part of the factory management and engineers.

In 1892, the Thomson-Houston Co. of Lynn, and the Edison General Electric Co. of New York were consolidated to form the General Electric Co., Mr. C. A. Coffin, then Vice-President of the Thomson-Houston Co., becoming President of the new company. No large electric manufacturing company in the world has confined its attention so strictly to the manufacture of electric apparatus and supplies or has had such success in the quality and quantity of its electrical work as the General Electric Co. It has sold more generators, more street railway motors, more arc lamps, more electrical meters and more motors for power purposes than all the other electrical manufacturers in the United States put together. Its present output of incandescent lamps is 12,000,000 per annum, more than three-fifths the total output of the United States. The receipts for electrical apparatus and supplies made in its own shops, for the

last financial year ending February 1st, 1901, was \$28,783,275.75.

## Electrical Engineers.

BOSTON MEN SOUGHT THE WORLD OVER  
—THEY HAVE THE BEST OF TRAIN-  
ING AND EXPERIENCE.

Between its great technical schools and its great interests in the evolution of electricity, the construction of electrical machinery and the introduction of the spark into almost every phase of the life of a great city, Boston is splendidly equipped with electrical engineers. She provides not only the most thorough education and preliminary training, but the best opportunity for practical experience and the greatest encouragement to invention and progress. The result is that her electrical engineers stand at the very head of their profession and are sought far and near when important and difficult work is to be done.

The various services which electricity performs for the public in Boston and throughout New England have drawn the attention of contractors and capitalists everywhere, and when an electrical expert has been required this has been one of the first places in which he was sought. Electric railways have reached as near perfection as modern skill and invention can devise hereabouts, and in their introduction into new places Boston's electrical engineers have been in great demand. Their field extends all over this continent and South America, and many European enterprises have had the benefit of their advice and direction.

In acknowledgment of the prominence which electrical engineering has assumed comparatively recently the technical and scientific schools of Boston have enlarged their facilities for instruction in the intricate branches which are necessary to a thorough training in every department of the profession and the high standard they have set for years is being constantly raised. The advantages of such an extension to the practising engineers are apparent, for they have at hand the means of continuing their studies and keeping their knowledge abreast of the latest information and are in a position to secure the best lieutenants and assistants in the world.

LOCKWOOD, GREENE & Co.—One of the leading firms of architects and engineers for industrial plants in New England is the well-known house of Lockwood, Greene & Co., whose offices are at 93 Federal street, Boston. The death last November of Stephen Greene, the President, caused that position to be assumed by his son, Edwin F. Greene.



Frank E. Shedd is Vice-President; Joseph Harris, Treasurer; William S. Church, Mechanical Engineer and Frank W. Reynolds, Architect.

A brief sketch of this fine old house was recently published showing that David Whitman commenced as a mill engineer in 1830, and in 1859 chose Amos S. Lockwood as his successor. Stephen Greene entered the service in 1879. Lockwood, Greene & Co. formed partnership in 1882, J. W. Danielson being a partner. In 1884 Mr. Lockwood died. Frank W. Reynolds was employed in 1885. Frank E. Shedd in 1887. Joseph Harris in 1889. Mr. Danielson retired in 1890, Wm. L. Church was employed by Lockwood, Greene & Co. in 1900, concluding with the succession of Edwin F. Greene to Stephen Greene in 1901, and the incorporation last January of the present firm.

The modern engineering office includes a wide diversity of practice, and to this end Lockwood, Greene & Co. employ the best specialized skill, and at all times maintain a permanent force sufficient to promptly execute work of any magnitude and character, and to meet the constantly increasing business.

STONE & WEBSTER.—Combining the practical scientific work of electrical engineers and experts with the skill and shrewdness of experienced business men and well-schooled promoter of great enterprises, Messrs. Stone & Webster of 93 Federal street, Boston, hold an almost unique position in a

field which is becoming of more importance to progress and civilization every day.

Charles A. Stone and Edwin S. Webster organized the firm in 1889, when the employment of electricity in the public services, such as lighting and railways, was still comparatively undeveloped. Their qualifications as electrical engineers and experts were well established. Their ability as organizer and conductors of large undertakings was promptly recognized. Now they have 152 employees, and are general managers and financial agents for these companies, which have their executive offices and headquarters in the office of Messrs. Stone & Webster; Lowell Electric Light Corporation, Seattle Electric Co., Seattle-Tacoma Interurban Railway, Columbus Railroad Co., Cape Breton Electric Co., Edison Electric Illuminating Co., of Brockton, Edison Electric Illuminating Co. of Savannah, Ga., Brockton and Plymouth Street Railway Co., Houghton County Street Railway Co. of Houghton, Mich., Blue Hill Street Railway Co., Fort Hill Chemical Co., Tampa Electric Co., Terre Haute Electric Co., General Electro Chemical Co., El Paso Electric Co. of El Paso, Texas and Houston Electric Co. of Houston, Texas.

The consolidation of all the electric railway and lighting interests of Savannah, Ga., has also been entrusted to Messrs. Stone & Webster, and they have in process of organization an electric railroad for Ponce, Porto Rico.





# Notable Industries that Protect the Interests of All—Life Insurance—Mercantile Agencies—and Publishing Houses.

DIVERSITIES OF NEW ENGLAND ENTERPRISES ALMOST BEWILDERING—DEVELOPMENT OF THEORIES, THAT PRACTICE HAVE MADE PERFECT—MASSACHUSETTS CAN CLAIM THE GREATEST IN THE UNITED STATES OF AMERICA.



**T**HE number and diversity of our industries is almost bewildering. Life insurance has been developed in theory and practice until it is one of the most important features of the modern business world, Massachusetts boasting of several of the largest companies in the country. With the marvelous increase of modern literature, which is the beneficent result of our great educational systems, the publishing business has become a great industry. Boston is the literary centre of the country, and its great publishing houses are the natural outgrowth of such an enlightened condition of society.

The mercantile agency, at first frowned upon, is now an indispensable factor in the business world, its branches extending into every channel of industry, and its roots being thoroughly grounded in utilitarian soil.

## Life Insurance.

A SYSTEM OF SUPERVISION WHICH IS MODEL.

The Massachusetts system of supervising the methods and conditions of the organizations which insure the lives of the citizens of the Commonwealth is the recognized standard of efficiency. Thoroughness and fairness to both insurers and insured. Under it an unequalled degree of confidence and reliability, which inspires confidence, has been reached, and the single fact that no regular life insurance company incorporated in Massachusetts has ever failed is a vivid illustration of its value.

The supervision includes not only companies and

“orders” incorporated or formed in this Bay State, but outside organizations which do business here as well. Its purpose is purely to protect the citizens of this Commonwealth, of course, but one of its results has been to safeguard, in an indirect way, the interests of all the policy-holders of every company active within the jurisdiction of the Commissioner. While there is no question of the intentions of the life insurance companies of recognized worth and standing there have been cases in which an unsatisfactory state of affairs of some minor outside company which had passed unnoticed through a less rigid examination, has been revealed by the searching investigation which the Massachusetts officials make, under the law, each year. The high character of the men who bear so great responsibility for the Commonwealth has always been a guarantee of the utmost watchfulness, honesty and justice, and the insurance companies have been ready in willing co-operation and generous in appreciation of the value of the work from their own standpoint.

The scheme of the present laws regulating the business of life insurance companies in Massachusetts had its origin thirty odd years ago with Elizur Wright, who was an Insurance Commissioner at the time. He saw the possibilities of the tremendous business which he developed from the little known and less understood beginning of his day, which was the infancy of the present great institution. It early occurred to him that a business of such vast possibilities, based upon such unique and intricate theories, was especially easy of perversion. His keen mind, shrewd in reasoning and apt in suggestion, supplied the plans from which to-day's



strict but satisfactory and successful system of control was constructed.

The accounts of every insurance organization doing business in Massachusetts are thoroughly audited every year and full publicity given by State authority to the relations between company and policy holders. This is accomplished by actual accounting and computation in the case of every individual policy. The periodical exhibits of the companies are checked for absolute accuracy and completeness by a duplicate set of records held by the Commissioner where they are wholly beyond the influence or control of the organizations. At first this was not difficult, but the total business of that day was less in volume and value than that of a single small company is now, and the present scope of the work is of almost inconceivable magnitude.

In simple terms, the liabilities and the assets of

every insurance company in business here are proved by the Commissioner in the most thorough manner at stated intervals. That is to say, each

company must show him not only what it owes at the time of its report, but what it may be called upon to pay at any moment, which means the amount of money necessary to settle all of its policies in full; and it must be prepared to have every item of its assets examined by the Commissioner in person, for he can leave nothing to the word of anybody, however reliable he may know the man and his company to be. To accomplish this a duplicate of every life insurance policy written in Massachusetts, giving the details necessary to make clear all of the obligations for present or future which



HOME OFFICE OF THE JOHN HANCOCK MUTUAL LIFE INS. CO., BOSTON.

the company issuing it takes upon itself, is filed with the State Commissioner. So the authorities are constantly aware of the exact condition of every company in the State, the surplus which it



has for the protection of those who hold its policies and its financial ability in general.

The results of this seemingly severe supervision have been most excellent in every way. Not only has no Massachusetts life insurance corporation ever failed, but the public has been rescued from the danger of loss through the few outside companies which have at times given such evidence of an unsatisfactory condition that they have been denied the right of doing business here. The fact that a company is allowed to operate in the State has become a high recommendation, and, in a way, a guarantee of its soundness and honesty to the insured.

JOHN HANCOCK MUTUAL LIFE INSURANCE CO.—In April, 1862, a charter was issued to Nathaniel Harris, James P. Thorndike and Gerry W. Cochrane incorporating the John Hancock Mutual Life Insurance Co., of Boston, Mass. This corporation began business with a guaranteed capital of \$100,000, which was retired in 1873, carrying out the intention of making the company a purely mutual one. The first President was George P. Sanger, and its first policy was issued on December 27, 1862. It was intended to be an exponent of the Massachusetts Non-forfeiture Law of 1861, and was the first company to pay a claim under the terms of that law. The John Hancock has continued to work under the law as amended and approved in later years, notably at the suggestion of Mr. Stephen H. Rhodes, who had been Insurance Commissioner of Massachusetts since 1874, and who resigned that office in 1879 to become the President of the John Hancock. It may be said with truth that the substantial and vigorous prosperity of the company dates from the time Mr. Rhodes assumed its guidance.

Although the youngest of the Massachusetts life insurance companies that were started on the old-line plan, the magnitude of its transactions and the vigor of its growth have given it a very prominent position.

During the thirty-eight years ending with December 31, 1900, the John Hancock had returned to its members \$21,340,389 in death claims, \$3,417,579 in dividends, \$3,267,304 in surrender values and \$1,815,758 in matured endowments, making total cash payments to policy-holders, during the period adverted to, amounting to the splendid sum of \$29,841,030. At that date the company also held the sum of \$14,369,278 to the credit of its policy-holders as a legal reserve or sinking fund against the maturity of its policies. Its home office building at 178 Devonshire street, Boston, is a splendid structure and has been occupied by this company since February, 1891.

## Book Publishers.

### BOSTON'S SPLENDID EQUIPMENT AND INFLUENCE.

The first printer in America made his home in Cambridge, the principal suburb of Boston, and several of the leading "presses" of the United States have their homes in the same city, and have for years been located there. So the Greater Boston has been most prominently identified from its small beginnings with the great printing and publishing business of this country, where the production of books has developed most rapidly and startlingly.

There was a time when an American book was scarcely heard of in Europe, unless foreign editions of it were issued. The "older culture" had a mild contempt for the literary and scientific pretensions of the young nation, and showed them but scant courtesy. The generation of poets, essayists and novelists which the Bay State produced in the middle of the last century, most of whom made their abode in the vicinity of Boston, altered this state of affairs, however.

It was largely by the circulation of their works, issued by Boston concerns, that American publishers and their product, American writers and their work, first took their proper rank in the eyes of the outer world. They first won for the city its reputation for high intellectuality, and its name as the "Athens of America." To-day the name of Boston has come to be recognized almost as the hallmark of mechanical excellence in a book trade which extends across all the seas.

Famous individual volumes and famous editions innumerable have come from these great "presses." American science, American history, American pedagogy have been exploited by them, and have in turn made the reputation of the American author, editor and publisher. The American ideas and methods which have in this way been taught to the world are becoming the guides of other nations—the means to the newer and better civilization, the great leavening power in distant countries and among almost unknown peoples.

By reason of its close association with great seats of learning, perhaps, Boston became the natural birthplace of books of instruction in particular. Just as everybody had learned to look in this direction for the best educational methods, so all expectation was bent this way for text books. The "New England schoolma'am" took her place as the type of all that was efficient and desirable in her line of work; the Boston school book followed her and passed beyond her to regions she could not penetrate. The American publisher became an im-



portant factor in general literature by reason of his taste and judgment and skill; the Boston publisher gained recognition in the particular and important field of educational works because of his enterprise, his accuracy and his integrity.

One natural consequence of this was the selection of one or another of the Boston houses as their publishers by many of the best-known writers of standard school books and of such scientific and historical works as were intended to serve, among other purposes, as text books in the preparatory schools or the large scientific and professional schools and the colleges. There is scarcely a man or woman grown in any part of the country, it is safe to say, but has studied from a Boston-published school book of one kind or another, and the number of those who owe their entire acquaintance with "the three R's" and their later knowledge of more advanced subjects to volumes from the same centre of production is beyond computation.

The equipment of the Boston publishing houses is unsurpassed anywhere. Their work has always been a source of pride and satisfaction to them and its quality has been no small item in their capital. Especially in text books have they pointed the way to others. Those who have devoted their entire attention to this branch of the business have been liberal and progressive, adopting every improvement in book-making as soon as its application to the peculiar necessities of their specialty became practicable. They recognize the desirability of making the subject matter, and indeed the whole volume, attractive to the student, and use lavishly the best illustrations which can be procured, reproduced in the most perfect manner possible. Without detriment to their stability they have added artistic quality to the bindings they use, and to the typographical embellishments.

Above all, great improvement has been wrought in the size and clearness of the type in which the reading matter is set, and the quality of the paper on which it is printed.

The remarkable extension and development of

the text book publishing houses has given Boston one unique distinction. It is said that the city is better supplied than any other place in the country with the type faces of foreign languages, both ancient and modern. The missionary institutions which have their headquarters and their seminaries in New England have been the cause of the making of some of these strange characters.

GINN & Co.—The well-known publishing house of Ginn & Co. was established in the City of Boston



in the year 1867, and to-day is known throughout the world as a powerful factor in educational matters.

It has been the aim of this house to make a careful study of the problems of education, and it has spared no pains to secure the best editorial talent possible. Its list now includes books by the leading educational men all over the country, and in almost every town in the United States some of its publications are used. The house has for many years



GINN & CO., PUBLISHERS, BOSTON, MASS.

been second to none in the educational value of its books, and in the short space of little over a quarter of a century has grown to be the largest single schoolbook house in America.

A large number of their publications are edited by



Cambridge men. Their first book, Craik's English of Shakespeare," edited by Professor W. J. Rolfe, the well-known Shakespearean scholar, was published about the year 1867.

Then followed the well-known series of Latin books by Allen and Greenough; the Greek Grammar, by Professor W. W. Goodwin; Greek Lessons, by Professor J. W. White; the "Harvard Shakespeare," by Dr. Henry

N. Hudson; the mathematical works of Professor J. M. Peirce and Professor W. E. Byerly, and many others.

Among books most widely known and most extensively used of the 1,000 now published by



this house are the Wentworth Series of Mathematics, the Educational Music Course, Athenaeum Press Series, Collar and Daniell's Latin Books, Young's Series of Astronomies, International Modern Language Series, College Series of Greek Authors, College Series of Latin Authors, Blaisdell's Physiologies, Cage's Physics, the series of Classics for Children, Cyr's Readers, Montgomery's and Myers's Histories, and Frye's Geographies.

They have recently added the "Trade Department" which issues publications of a general character.

Their great plant is located on the Charles River, Cambridge, within a radius of one mile from the State House. Here the company obtained land with abundant light, which is so essential in their business for the best quality of work. This location affords them the best advantages in shipping to all points of the compass.

The "Athenaeum Press," as Ginn & Co. style their building, is a model one for manufacturing purposes, with a frontage of 200 feet on each street, and a depth of 70 feet. It is lighted by 800 incandescent and 30 arc lights. The different departments occupy about three acres of floor space. The output of this great establishment is 10,000 books per day.

The Boston offices of Ginn & Co. have recently been changed from Nos. 7-13 Tremont Place to splendid new quarters—No. 29 Beacon street, two doors west of the State House—on which site stood the home of John Hancock of Revolutionary fame. Ginn & Co. have offices in New York, London,



The John Hancock House 1737-1863

Chicago, San Francisco, Columbus, O.; Atlanta, Ga.; Dallas, Tex., and depositories in San Francisco and New Orleans. The members of the company are Edwin Ginn, Geo. A. Plimpton, F. B. Ginn, L. Parkhurst, O. P. Conant, T. W. Gilson, F. M. Ambrose, H. H. Hilton, R. S. Thomas and A. H. Kenerson.

## Something About New England Magazines.

New England famous for its Institutions of learning, naturally as a result of its great educational facilities, produces remarkable literary talent, and it all tends toward the natural outlet—the magazine.

There are hundreds of magazines published in New England, many of which have not only a national, but a world-wide reputation, and their combined circulation reaches well up into the millions. In the United States these publications reach the homes of the most intelligent reading classes. A large number of these are devoted to special fields of science and art in their many branches, while the stories of fiction that originate, in Boston and the States of the Pilgrims, are sufficiently historical to teach something to their readers so that their time is not altogether lost.

Prominent in the field is the New England Magazine and its readers cannot be otherwise than well posted, upon the current events of the day, and are well stocked with the works, of the best of the modern writers, not only of America, but of the world.

The present New England Magazine is almost wholly responsible for the many new writers that are making literary reputation. This was brought about by the encouragement offered to "unknown writers."

It is on record that a single publication issued monthly showed that nearly four hundred writers contributed to its columns in one year.

## The fruit Trade.

BOSTON, WITH ITS EXCEPTIONAL FACILITIES FOR MARKETING, IS ONE OF THE CHIEF CENTRES.

Boston is one of the chief centres of the fruit trade of the United States. It has long held a leading position in this particular branch of commerce, and each year sees it extending its scope by increasing its facilities, broadening its relations and enlarging its market.

One special advantage which Boston has in the fruit trade is direct communication with the districts where much of the imported product is grown. A line of steamers, fitted especially for the purpose, makes regular trips to and from this port, in addition to the usual complement of miscellaneous vessels engaged in the traffic, which insures a constant



supply of the freshest available fruit, kept in the best possible condition. The big fruit companies own plantations of their own and contract by the term for the whole yield of other large estates, so that they have, directly or indirectly, supervision over the growing, picking and handling of their merchandise. In Boston are also the home offices of several of the concerns which own or control other plantations, and thus, in double way, the city is in the closest touch with the chief sources from which the American and Canadian markets are furnished with the choicest of the fruits which cannot be raised here in sufficient quantities or which conditions of climate and of soil make it impossible to cultivate profitably, as yet, on this continent.

For dealing in the fruit crops of the North, South and West, Boston is exceptionally equipped. Coast-wise shipping is represented in its harbor by a large number of vessels, both steam and sailing, and its railroad connections extend by the most direct routes to the Pacific coast. The apple orchards of New England and Canada are its immediate neighbors, and the peach raising territory of the East lies close at hand.

In this, as in every commercial line, Boston is the natural trade centre of New England, and it is rapidly assuming the position of headquarters for many large mercantile interests beyond that. The great transportation lines which have their termini in the city lay a vast territory tributary and supply it with what it uses of necessities and luxuries alike. Fruit is becoming a more important item in the nation's food supply every year, and the exceptional facilities for marketing it possessed by the New England metropolis are increasing its annual business in this particular commodity at a very rapid rate.

Such has been the pace of this growth in fact, that the fruit companies of Boston have found it necessary to keep a sharp lookout for every opportunity to extend their purchases. They are credited with obtaining the best in quality that goes to any market in the country and to maintain this reputation and at the same time meet the tremendous demands upon them has been no easy matter, yet it

has always been done successfully. Some idea of what that means is conveyed in the statement that one concern alone is bringing here and distributing within the New England States 100,000 stems of bananas every week; and the New England States are but one corner of the market and bananas but one of many fruits.

SUMMER IN WINTER-TIME.—To go away from the cold climate of our New England Winter-time to a land where Summer is continual, is the fond ambition of everyone; an ambition which is limited only by the opportunity and the ability to undertake such a change of scene. At such times the land of Jamaica, that snug little British island in the Caribbean Sea, comes to mind, and the good offices of the United Fruit Company are offered to make real the dreams of "Summer in Winter-time."

This dream is realized by means of the two twin-screw steamers "Admiral Dewey" and "Admiral Farragut," which run weekly from Boston to Jamaica, leaving Boston on Wednesday at 10 A. M., and arriving off this most beautiful of the West Indian Islands four days and twenty hours from the day of sailing. These steamers are of recent model; thoroughly equipped; supplied with all the

conveniences which contribute to the comforts of the passengers, and officered and manned by men of tried abilities. They carry the United States Mail and are fast and safe. In one day they have left behind the Winter's cold, the next are in Summer seas, and the following days of the trip are spent in cruising through the islands of the Caribbean



THE TWIN-SCREW STEAMER "ADMIRAL DEWEY."

Sea to the island where hill and mountain and valley and plain are covered with the rich verdure of the tropics; where the skies are bright by night as well as day; where fruits and flowers combine to make the experiences of the tourist novel and delightful. A letter to the United Fruit Company, Long Wharf, Boston, will be answered with all the facts and information, describing the vessels, the accommodations, the bill of fare, and all that the tourist would know of this inexpensive and delightful way of avoiding Winter.



## Tea and Coffee.

TWO STAPLES OF GENERAL USE, FOR WHICH  
THE COUNTRY HAS ALWAYS LOOKED  
TO BOSTON.

There was a time when tea got Boston into much trouble, but that was partly because Boston took so much interest in tea and because her merchants were the great tea importers of the colonies. To-day the interest is unabated, and a goodly part of the country still turns in the same direction for its cup of consolation.

Although coffee never had such historical importance here as tea, Boston is the chief market of the country for the higher grades in roasted form. This means a good deal when it is considered that although it can claim but a little more than one-twentieth of the world's population, this continent consumes almost one-half of the world's coffee production. In one branch of this trade Boston is especially well known. From her storehouses and mills are sent out a large percentage of the "branded" coffees, which have become so popular within the last few years on account of their convenience and the known quality of their blending.

The position which Boston occupies in the tea and coffee trade is a heritage from her old-time merchants. There have been many changes in methods, in men and in the territory looking this way for its distributing centre since the days when vessels lined the south side of State street as far up as the Custom House, but in spite of them all there has been a healthy growth, which continues from year to year.

CHASE & SANBORN.—Boston is the home office of Chase & Sanborn, the largest distributors of high-grade tea and coffee in the world, and it is their large transactions (amounting to over \$5,000,000 a year) which have brought Boston the unique distinction of handling and selling more high-grade roasted coffee than any other city in the United States. Everybody who attended the World's Fair in Chicago remembers the delicious coffee served on the exposition grounds. The managers of the Fair were determined to make this a great attraction to the thousands of visitors, and they chose Chase & Sanborn's coffee above all others as the best for this end.

The firm of Chase & Sanborn has a famous history, for the business dates back nearly half a century. At present the managing owners are Caleb Chase, James S. Sanborn, Charles D. Sias, Charles E. Sanborn, John Moir, Benjamin S. Palmer, William T. Rich, and, for the Montreal house, Daniel Gillmor; for the Chicago house,

Carleton Moseley and Henry T. Brown. Under these active managers there is a trained working force of over 500, each man educated for the special work.

The business has been wonderfully systematized, and the maxim of the house has long been that there is nothing too good in product or service for its patrons. The establishment is representative in its line all over the world.

## As to Sugar.

BOSTON PLANTERS AND GRINDERS MAKE THE  
FINEST QUALITY AND IMPORT IT.

One of the few independent sugar refineries in the country is located within the limits of "Greater Boston," and one of the leading planting and importing concerns on this side of the ocean has its headquarters in the city. Boston as a port of entry does not do such a business in sugar as New York, but its importance in the market is not inconsiderable, for Boston planters supply the great refining centres with some of the best of their raw material.

The peculiar interest which Cuba has to all Americans just now and the improved conditions which obtain there since its industries have begun to recover from the blight accompanying Spanish rule, have turned general attention to what Yankee enterprise has been doing on the island for some time, and nothing stands out to greater advantage than the work of Boston capitalists among the sugar planters and mills. They are largely interested in cane which they do not themselves raise or own, but they have prospered splendidly where they have themselves engaged in planting and grinding. As is to be expected of a business based on New England energy and conducted in accordance with New England commercial traditions and precepts, the product is as fine as can be made and finds a ready market. It has all the advantages which the most advanced ideas and improved machinery for sugar making can give it, and is a distinctly American commodity.

E. ATKINS & Co.—One of the old line mercantile firms of Boston, and one which in the palmy days of the import trade was recognized as a leader in its line, is that of E. Atkins & Co., sugar importers and manufacturers of sugar in Cuba. Established in 1840, when the sugar carrying trade from the West Indies to Boston was one of the principal factors in the city's commercial prosperity, this company has remained, despite the competition of competitors, in the column of what may be termed "old Boston merchants." The only surviving partner is Edwin F. Atkins, but he has carried out



the plans of the firm along original lines, and as a consequence it is recognized as one of the best sugar houses in New England. In addition to the firm's trade as sugar importers, it has the advantage over many modern houses in that it owns and operates large sugar plantations in Cuba and imports the products of its own sugar houses and boiling vats, as well as the output of high class foreign refineries. The manufacture and refining of sugar as a branch of commercial industry has seen many changes during the sixty-two years that E. Atkins & Co. have been in business, but this has not altered the firm's position in the trade, except that it has developed with the business of handling and making cane sugar in quantity. The offices of the company are at 35 Broad street, Boston.

## Wholesale Drugs.

### CHANGES AND DEVELOPMENT IN ONE OF BOSTON'S OLDEST COMMERCIAL LINES.

The wholesale drug business is one of those industries that contributed to the commercial fame of Boston in its earlier days. It, therefore, has its romantic as well as practical side, and appeals to the imagination quite as strongly as the mercenary spirit. In Revolutionary days the drug wholesalers were counted among Boston's merchant princes. The whole country and the West Indies were supplied with drugs exclusively through Boston ports, and never a ship came into Massachusetts Bay without a consignment of drugs often more precious than gold or jewels. The local pillpounder in these days filled a humble position, for the art of compounding drugs was mainly carried on over the seas and shipped all ready for use to this country. This state of things continued a great many years, and enormous fortunes were made by the drug importers of the olden time, who had only to await the arrival of the ships and then send their goods into every civilized part of the new world.

Eventually other great importing centres came into existence and the business was divided, but the wholesale drug business in Boston, while changed in character, as are nearly all great industries to-day, still maintains an important place in the commercial world, and has increased in volume in proportion to the development of the country. The vast majority of drugs are still sought from foreign countries, but now many drugs are manufactured in the United States.

The development of American drug-making has brought about one of the greatest changes that have been wrought in the industry. Proprietary medicines and drugs in innumerable tablet form

are manufactured in such great quantities in all sections of the country that a list would fill volumes. All this increases the great business of the wholesalers who, in handling both American and foreign drugs, are doing an immense business, which grows annually and yields a handsome profit. Boston wholesalers found the past year a good one, and say that 1902 has opened auspiciously.

CARTER, CARTER & MEIGS.—The well-known wholesale drug house of Carter, Carter & Meigs is one of the most popular in New England, and commands an extensive trade. The firm was established by Solomon Carter in 1837, the present firm succeeding Carter, Carter & Kilham, in 1897. The firm members are: Fred. S. Carter, Herbert L. Carter and Joseph E. Meigs.

Fred. S. Carter and Herbert L. Carter are the sons of Solomon Carter, the founder of the house. Being in the business all their lives, they have received that business training so essential to the success of a large and growing business. Mr. Joseph E. Meigs also grew up in the business. They employ in the daily routine of the house nearly 100 employees. Among their travelling representatives are some of the oldest and most popular wholesale drug salesmen on the road.

This house conducts a general wholesale drug business, making a specialty of the sale of proprietary medicines. It is the oldest house in its line in Boston, with a constantly increasing trade. The present members of the firm have been connected with the business for thirty-four years. For the past eight years the firm have occupied the present location, numbers 20 to 38 Merrimac street, corner of Friend street, Boston.

## An Educational Centre.

### BOSTON THE HOME OF SOME OF THE COUNTRY'S GREATEST SCHOOLS—ITS EXCEPTIONAL FACILITIES.

No other part of the country is so well equipped for the education of its people as is New England. Its reputation in this regard is world-wide and has increased as its years have grown, until it has become a model for civilization everywhere. And this is particularly true of the institutions of higher learning.

In less than two and three-quarters centuries the spirit which brought the forefathers to Plymouth Rock has fostered and increased in this little band of States to a degree which no other time or place has ever equalled, the desire to progress by knowledge and to help others on in the same path. The original purpose was to educate young men for the



ministry, but this was soon developed along general lines, with New England, and Massachusetts in particular, ever the leader of the vanguard.

Boston at once became the centre of intellectual activity in the Western Hemisphere, and no influence in other parts of the country has been able to shake its position for a moment. Possessed of one of the finest public libraries of the world, supplemented by great semi-public collections of books, which are generously at the disposal of the students of the great classical, scientific and technical schools, it has facilities for educational work such as are obtainable nowhere else on this continent. The natural result is that its student population is steadily increasing and the institutions which attract it are growing in ability and strength accordingly.

THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY.—The Massachusetts Institute of Technology was incorporated in 1861 by the State. Its aims are to provide instruction in the sciences and their application to the arts, in combination with such general studies as are essential for a liberal education. Thirteen distinct courses are offered, each of four years' duration, viz.: Civil, mechanical, electrical, chemical and sanitary engineering, mining engineering and metallurgy, architecture, chemistry, biology, physics, general studies, geology and naval architecture. Thirty-four classes have graduated, numbering about 2,500 persons. For the satisfactory completion of any one of these studies the degree of Bachelor of Science is conferred by the Institute.

While primarily a school of applied science, its curriculum has by no means neglected literary, historical and economic study. Students are accepted at eighteen years, with such preparation as can be obtained in public High Schools, and all the States in the Union are represented in its classes.

The inception of this school dates back to the foresight of William Barton Rogers, a professor at the University of Virginia, who went to Boston in 1853, and presented plans for the foundation of an institute of technology to the members of the Legislature, which would afford opportunities to

the public at large for instruction in the leading principles of science as applied to the arts to provide for the means of a continuous and thorough training.

The tuition fee is \$200 a year, which is much less than the average cost to the Institute for each student. The location is at No. 491 Boylston street, Boston.

## Hotel Hospitality.

NEW ENGLAND TRADITIONS MORE THAN  
CARRIED OUT TO-DAY—THE FAMILY  
HOTEL IN ITS PERFECTION.

From the earliest days New England hospitality has been proverbial for its wholesome comfort, whether sought in the homes of the people or at a place of "public entertainment." Many of the old-time taverns are still famous, but their great worth

to the modern guest lies in the lessons they handed down to the host of to-day. The precepts have been carefully learned and scrupulously regarded, it would seem.

No other city of its size has such hotel accommodations for the temporary visitor or for the permanent resident as Boston can boast. The utmost care has developed perfection of service to the smallest detail, comfort and conven-

ience being the prime considerations. The arrangements for street travel are such that it has been possible to combine accessibility with desirability of location, and sites on the great avenues and parkways which are famous the world over have been utilized.

In the matter of home or family hotels Boston is particularly fortunate. Their establishment has been regulated by the demand of conservative and exacting people, and so has kept pace well with the most modern methods of construction and furnishing. Luxury, good taste and reasonable cost have been considered alike important, and the result is that happiest of combinations which leaves nothing to be asked for, nothing that is not generously provided.

THE HOTEL SOMERSET.—The Hotel Somerset, of Boston, located on Commonwealth avenue and Charlesgate East, is certainly "an artist's dream."



"LOOKING ON THE CHARLES."  
(From the Hotel Somerset.)



Situated in the prettiest part of the city with picturesque and wealthy surroundings, it stands alone as the finest hotel structure in the city. Under the personal management of its proprietor, Mr. C. A. Gleason, it offers its patrons the best accommodations and attention. To the Hotel Somerset an addition is about being completed, which includes 100 more rooms, magnificent ball room, finished in the style of Louis XV. Added to the former equipment, of banquet hall, palm room, Dutch room and Imperial dining hall, etc., with connecting dressing and reception rooms, it constitutes one of the most sumptuous hotel properties in the world. It is but natural that Hotel Somerset should be selected as the stopping place for Prince Henry of Prussia during his visit to Boston. It is simply an "Imperial Alliance."

## Business Safeguards.

THE EFFICIENCY OF THE MERCANTILE AGENCIES,  
THEIR POPULARITY AND THEIR  
ACCOMPLISHMENTS.

The old Boston merchants and their fellow business men in other parts of New England have ever borne a reputation for integrity and straightforward dealing, and for enterprise which has made them the ideals of the world of trade and commerce. Strict and scrupulous methods, and a spirit of broadminded progressiveness which not only had ideas of its own, but is not too narrow to adopt those of others which seem worthy or useful, have been their characteristics always.

As a matter of course the mercantile agencies, the great clearing houses of business credit, found a place among such men from their inception and have been important factors in their dealings every day since. They have been welcomed as valuable institutions, and their work has been worth proportionately more on that account, for they have been able to attain to an extraordinary degree of

accuracy without any disturbance of business conditions.

Indeed, it is doubtful if the service of the mercantile agencies is more valuable or more valued anywhere than in New England. In no other section of the country is its information more complete or exact, and nowhere is it more generally made use of. It is unquestionable that the mutual benefits of the mercantile agencies should be given no little credit for the business stability of the six States and their immunity from commercial disasters.

R. G. DUN & Co.—The greatest of mercantile agencies in the country, R. G. Dun & Co., was organized in the year 1841, and continued to grow with marked rapidity until to-day it stands at the head of their line of business, having offices in all the great cities and represented wherever business is transacted throughout the world. It has as its patrons the leading manufacturers, wholesale and jobbing houses and bankers of the United States and Canada, besides the business of its European offices. The expenditure of some two millions of dollars yearly enables the company to keep under constant revision over 1,300,000 traders of the Continent, making a fund of information which is constantly at the service of its patrons. The main element of the strength of the R. G. Dun Mercantile Agency is in the great number of its subscribers, exceeding those of all competitors combined. This is so well known that it has long been accepted as evidence of its superiority, as it represents the public verdict of its greater merits. It follows as a logical result that its close relations with its subscribers brings about an exchange of opinions, and discussions and analysis of its reports and ratings which is productive of much more correct and reliable conclusions than if its business was not so extensive.

The Boston office is at 3 Winthrop Square and 36 Otis street. W. B. Powell being the district manager.





# Men Who are Leaders and Sons of the Bay State have been Conspicuous in History, and are Still to the front.

A UNIVERSALLY RECOGNIZED TRUISM—FLESH AND BLOOD OF NEW ENGLAND  
THE BACK BONE OF THE NATION—IN WAR, IN PEACE, IN BUSINESS,  
IN INTELLECT—THEY ARE AMONG THE FIRST  
OF THE LAND.



**I**T is a universally recognized truism that Massachusetts men have always been the backbone and sinew of the American nation. From primitive Colonial days to the present time of remarkable achievement, the sons of the old Bay State have gone forth to battle with the intellectually strong of other parts of the country—in the business world, the political arena, among the professions, and in the field of art and letters, and have always shown themselves worthy adversaries. History is fruitful of instances where the men of Massachusetts have demonstrated their superior attainments and intellectual acumen. In no profession has this eminence been more marked than in that of the law. Many members of the Massachusetts Bar have not only become celebrated in jurisprudence, but have entered the larger field of politics and contributed to the building of the State and the nation. Their names are now given a conspicuous place on the pages of history.

But not alone has this State produced scholars and statesmen; its practical business men and financiers, while conservative in their tendencies, have continually demonstrated their ability to climb the ladder of success. And the men of conspicuous ability are not all dead. Leaders do not stand out to-day as they did a half century ago, but it is because there are so many of them, and because of the present greatness of our country.

ALBERT S. BIGELOW.—Many men are known by what they do for their country, their State, their place of residence and their fellowmen. In the world of letters many men are known only by their works; in politics by their shrewdness, and generalship in the army and navy solely because they have

gained wonderful victories. Countries have their heroes made in a day, but the men behind them all, the men who make nations, are the solid legitimate business men. The world moves on, and in these modern days Princes cross the seas to meet and wine and dine with the men of business.

The real Prince of to-day is the Prince of finance. The men who build up great financial and commercial institutions. They who pay the taxes and employ labor.

In the foremost rank of the business men of the old Bay State, is Albert S. Bigelow born in the town of Hanover, this State, the ancestral home of the Bigelow family. Mr. Bigelow's business interests are many. As President of the great Boston and Montana Consolidated Copper and Silver Mining Co. before it was absorbed by the Amalgamated, he was a prime factor in all its many important deals.

His residence is at 21 Fairfield street, and he has a beautiful summer home at Cohasset. He is a member of the Somerset Club and the Country Club of Brookline.

JOSEPH A. CORAM.—Men of business—men who have achieved name and fortune by their business tact and foresight, seldom gain it except after years of hard work. The business man must wait and work. His brain must be constantly alive to each and every situation. His competition is great, other men of brains are always ready to oppose his every act. For these reasons a man who has made a success of life by honorable and strictly legitimate business means is indeed worthy of the highest commendation.

In this respect Mr. Joseph A. Coram, of Boston



has won for himself name and fame. Mr. Coram is a man whose great business interests comprise no less than twenty companies and who stands practically among the leaders of those handling mining interests. It is stated that he has bought and sold \$40,000,000 of mines. He has controlling interests in lead, silver, copper, zinc, iron, coal and gold mines.

Mr. Coram is at present President of the Bingham Copper and Gold Mining Co., the Cochiti Gold Mining Co., the Kalispeel Water and Electric Light Co. and the Montana Coal and Coke Co., and is a Director in the Consolidated Mining and Smelting Co., the Navaho Mining Co., the Pennsylvania Furnace Co. and the Middlesex Safe Deposit and Trust Co. . .

The Boston offices of Mr. Joseph A. Coram are at No. 60 State street.

HON. THOMAS N. HART.—Thrice Mayor and for almost half a century a leading business man and financier, Hon. Thomas Norton Hart is certainly entitled to be called one of Boston's most prominent and most valuable citizens. Mr. Hart's active connection with city politics, in which he has always been an ardent Republican, dates back to 1878, when he was chosen as a party candidate for the Common Council. He immediately sprang into prominence in that body and was untiring in his efforts for good government. Active and aggressive, he became a leader in all important debates, and had the city's interests thoroughly at heart. His record and his ceaseless and conscientious work, prompted his election for a second term, and after the second term expired he was urged to accept a third.

He became a power in the party and went into the Board of Aldermen, where he served for seven years.

In 1886 and also 1887, Mr. Hart was the candidate for the Mayoralty, and in 1888 he was elected to that office. After an enterprising and successful term he was again nominated and elected.

In the year 1891 he was appointed Postmaster of Boston, and in 1893 was again selected Mayoralty candidate.

It was six years before Mr. Hart reappeared in politics, when he defeated Patrick A. Collins for the Mayoralty in 1899. The term of the chief municipal magistrate had been extended meantime to two years, and at the end of that time he was renominated.

HON. ISAAC P. HUTCHINSON.—At a time of life when most men are but starting their career, Hon. Isaac P. Hutchinson, of Boston, has attained a position in business and in politics which few men

reach at all. He was born in Cambridge and was educated in the public schools of his native city and at the Maine Wesleyan Seminary.

Mr. Hutchinson's interest and activity in politics began as soon as he came of voting age. From the first he identified himself with the Republican party, and he has always been one of its faithful supporters. In 1890 he was elected to the Boston Common Council from Ward 17, and the following year was sent to the Legislature as one of the representatives of the same district. He was a candidate for the lower branch of the General Court again in 1894. Later he served two years in the State Senate.

After the resignation of Jesse Gove from the Presidency of the Republican City Committee last spring Mr. Hutchinson was chosen to the office, and this year he was re-elected. Six or seven years ago he was very earnest in the exposure of registration frauds, and largely through his efforts a thorough investigation of the peculiar election methods of certain sections of the city, which resulted in a prompt reform of the evil, was begun.

He is a member of the Republican Club of Massachusetts, the Lincoln Republican Club, the Marketman's Club, and the Grand Lodges of the Odd Fellows and the Knights of Pythias.

G. M. HYAMS.—G. M. Hyams is a young man who has worked his way to success through the sheer force of his own energy, pluck and perseverance, and his ability to see opportunities and to take advantage of them when they were offered. He started with little or nothing and has accumulated a fortune, and to-day is regarded as a strong factor in the mining world. He is bright, quick, progressive, and withal a fighter, as many who have been pitted against him can testify.

Mr. Hyams's success dates from the starting of the great Montana smelter. At that time the copper mines were not working well, and Mr. Hyams was sent West to investigate the difficulties and apply remedies if possible. Success crowned his efforts, and from that time he began to gather a great reputation as a mining and metallurgical expert.

In the great political fight between F. A. Heinze and W. A. Clark on one side and the Amalgamated on the other, which took place in Montana nearly two years ago, Mr. Hyams managed the campaign for the Amalgamated in an aggressive manner. Since resigning his position in the Boston and Montana Mining Co. he has been connected with Lewis & Bros., or the United Smelting Co. Mr. Hyams is regarded as more of a practical mining man than a financier, and does not enter prominently into speculative affairs.



EDWIN B. RICE.—Edwin B. Rice is one of the young men of Massachusetts who has every necessary quality to become a leader among his fellows. Not yet twenty-five years of age, he takes hold of enterprises with the dash and determination that mean success.

Taking a keen interest in matters pertaining to the turf, he bought the famous pacing horse *Anaconda* from James Butler, of New York, for which he paid \$6,500. *Anaconda* was foaled in 1893, b. g., by Knight, dam Haggin Mare by Angora. Last August he beat Joe Patchen at Brighton Beach, and a few days later he beat Prince Alert, making his famous record of 2.01 $\frac{3}{4}$ . Previous to that, and in 1900, *Anaconda* successfully met the cracks of the turf and was heralded as the coming pacing wonder.

Edwin B. Rice is a shrewd business man as well, and it is said he has added considerably to the large fortune left

him by his father some three or four years ago. His home is in Boston, though he spends considerable of his time looking after his numerous business interests in the City of New York.

## Lawyers.

### BOSTON'S HIGH PLACE IN JURISPRUDENCE.

A cursory glance at history is enough to convince anyone that from the earliest days of the country to the present time the Massachusetts Bar has occupied a most eminent and honored place in the legal profession of this country and has at all times con-

stituted an important factor in American jurisprudence. Boston has been the home of many legal luminaries and judicial minds whose reputations have been coextensive with the country and who have left their impress upon its laws.

The Massachusetts Bar of to-day is unquestionably the peer of any, with many individual representatives who have demonstrated legal knowledge, ability and character of the rarest kind.

The lawyers of to-day point with commendable pride to the fact that Daniel Webster, while born in New Hampshire and of an old family of that State, studied law in Boston with Christopher Gore, and passed many of the formative years of his life within the precincts of this Commonwealth. The man who represented this district in Congress and several in the Massachusetts Senate was properly a Massachusetts man. One of the greatest orations he delivered

was at the laying of the cornerstone of Bunker Hill Monument in 1825. Webster is commonly spoken of to-day as an orator, but that he was an equally great lawyer was evidenced by the remarks of Judge Wayne of the Supreme Court of the United States. In the famous case of *Gibbon v. Ogden*, which involved the constitutional right of the State of New York to grant monopolies to its tide waters, Webster appeared and Judge Wayne said that his argument "released every creek and river, every lake and harbor in the country from the interference of monopolies."

The next greatest name among the famous law-



UNION AND MAYFLOWER CLUBS.

*The Union Club is a representative organization of the Bench and Bar, though other professions than the Bar are worthily represented in its membership. It was organized during the Civil War, and had as its first president Edward Everett.*

*The Mayflower Club, close by, is a social down-town club of Boston women organized in 1893. The rooms are furnished with periodicals, and conveniences for writing, and the restaurant is especially inviting. Its membership numbers about 300.*



yers of the Massachusetts Bar was that of Rufus Choate. This eminent advocate and orator was a native of this State, was educated here and practised law here. After his death he was acknowledged to have been the leader of the Massachusetts Bar. Lemuel Shaw was another whose judicial reputation was second only to Theophilus Parsons. Shaw was the man who drafted the original charter of the City of Boston. Moses Parsons and his son, Theophilus Parsons, were both great jurists in their times. Theophilus was the Dane professor of law at Harvard, and wrote many legal works which are regarded as authorities to-day.

Benjamin Franklin Butler, who was distinguished in Democratic politics of the State and nation, was the "greenback" candidate for President in 1884, and won an admirable record in the Civil War, was a member of the Massachusetts Bar. Benjamin R. Curtis was a true product of this State. He was one of the counsel who defended President Johnson on his trial before the Senate.

Joseph Storey, the celebrated jurist and constitutional lawyer of the school of Marshall, was born in Massachusetts and admitted to its Bar. He was a noted writer and became Associate Justice of the Supreme Court of the United States. The name of Richard H. Dana, lawyer and writer, is another to be added to the list of famous men of the Massachusetts Bar; also that of Caleb Cushing, jurist, scholar, diplomat and Justice of the Supreme Court of Massachusetts.

Many names could be quoted of lawyers who acquired great fame in this State and who were the contemporaries of many now practising law in this city. John Lowell was appointed Judge of the District Court of the Massachusetts District by President Lincoln, in recognition of his great ability as a jurist. His father and grandfather before him held the same position. In the department relating to bankruptcy he was the most distinguished Judge in the United States. Sydney Bartlett, who died at an advanced age, in 1899, was a leader of the Suffolk County Bar, and for many years was recognized by the Supreme Court of the United States as the ablest lawyer in the country who appeared before that tribunal. Nathan Morse, Henry Sweetzer, Robert O. Smith, Henry W. Merwin and Henry W. Paine were Boston lawyers whose names are spoken reverently by the legal lights of to-day; and there were others who were a great credit to the profession.

Many changes and developments have come about in the practice of law to-day. The tendency has been to specialize.

ELDER, WAIT & WHITMAN.—A law firm that has attained great prominence in Boston through re-

markable success in the trial of important cases is Elder, Wait & Whitman, which includes Mr. Samuel J. Elder, Mr. William C. Wait and Mr. Edmund A. Whitman. This firm was established in 1890, and since then has been engaged in general law practice and copyright. The offices are located in the Pemberton Building in Pemberton Square. Mr. Samuel J. Elder was chairman of the Republican State Convention in 1901. He was counsel for Prof. Eastman in the famous murder trial in Cambridge, and defended the interests of Rev. Mary Baker G. Eddy in the trial of a suit brought by Mrs. Josephine C. Woodbury.

GASTON, SNOW & SALTONSTALL.—Among the representative legal firms of Boston which make a specialty of mercantile and corporation business is the association of Gaston, Snow & Saltonstall. This firm was originally established in the year 1893 under the name of Gaston & Snow, which succeeded to the business of the old Boston legal firm of Gaston & Whitney, the senior members of which were William A. Gaston's father, ex-Governor William Gaston and Charles L. B. Whitney. William A. Gaston, the head of the present firm, was the junior member of the old firm of Gaston & Whitney. Subsequently Mr. Whitney retired, and Mr. Frederic E. Snow was taken into partnership. In 1891 William Gaston, Sr., retired from active practice, and later Mr. Richard M. Saltonstall was associated with Messrs. Snow and Gaston. The practice of this firm has been of the highest character, and their clientele is drawn from the largest and most representative business men and firms of the New England States. Col. William A. Gaston holds a high place among Boston's most influential citizens. As Director of the Massachusetts National Bank in Boston, as Trustee of the Proprietors of Forest Hills Cemetery, and as President of the Boston Elevated Railway, Col. Gaston distinguished himself.

During the three terms of Gov. Russell he was Assistant Adjutant General on the Governor's staff.

HERBERT PARKER.—No man in the State is more deservedly popular or numbers more warm personal friends than Herbert Parker, the new Attorney General for Massachusetts.

Mr. Parker was born fifty-six years ago in Charlestown, Mass. After graduating from Harvard in the class of '78 he studied law with George F. Hoar, and subsequently practised in Clinton and Worcester. He has devoted most of his life to the practice of his profession, but the few political offices he has held have been administered well. He is a Director of the Citizens' National Bank of Worcester, and holds other positions of trust in that city.



THOMAS W. PROCTOR.—An able and brilliant lawyer and a genial man personally, Thomas William Proctor has developed a large clientage and a wide circle of friends. He was born in Hollis, N. H., November 20, 1858. His early education was obtained in the public schools of his native town, and he was prepared in the Lawrence Academy, Groton, for Dartmouth College, from which he was graduated in the class of 1879. After a short service as Principal of the Groton High School he entered the Boston Law School, where he studied for one year and was admitted to the Bar of Suffolk County in October, 1883. He practised law until July, 1884, when he was appointed clerk to District Attorney Stevens. After four months he resigned, and with Samuel J. Elder and John H. Hardy formed the law firm of Hardy, Elder & Proctor.

In December, 1886, he was appointed Second Assistant District Attorney, and a year later was made First Assistant. He resigned May 1, 1891, and was appointed Assistant City Solicitor. This office he resigned in February, 1894, and after practising law alone until October 1 of the same year formed a partnership with Robert W. Nason, under the style of Nason & Proctor. Their offices were located at 246 Washington street until last March, when they moved to Barristers' Hall, where they are now located. Mr. Proctor is a general practitioner and spends most of his time trying cases. Mr. Proctor is a Democrat of the old type. He is a member of the University Club, the Curtis Club and the Beacon Society.

WRIGHT, BROWN & QUINBY.—The firm of Wright, Brown & Quinby, patent lawyers, whose offices are

in the Exchange Building at 53 State street, is now composed of Charles F. Brown and William Quinby, the former third member; Col. Carroll D. Wright having retired in 1880 to become United States Commissioner of Labor at Washington, D. C. The firm was established in 1866, and was then Wright & Brown. In 1885 Arthur W. Crossley was taken into partnership, and the title of the firm was Wright, Brown & Crossley until 1894, when Mr. Crossley withdrew and William Quinby took his place.

Mr. Brown is now the senior. He was born in Hampden, Me., October 21, 1848. He received his early education in the common schools and the academy of his native city. He studied law in the office of an important law firm in Washington, and practised law in the national capital, making a specialty of patent rights, until 1874, when he came to Boston.

Mr. Quinby is a native of Sandwich, N. H. He was graduated from Dartmouth College and the Law Department of Columbia University in Washington. After leaving college he was for several years Examiner of Patents in the Patent Office at Washington. He resides in Cambridge.

The early careers of both Mr. Brown and Mr. Quinby were such as to equip them well for looking after the interests of patentees, and a long and wide experience and ripe erudition placed them among the leading patent lawyers of the State. They are retained by large manufacturers and great corporations, and in recent years have had to do especially with boot and shoe machinery, textile machinery and automobiles.





# Lowell, Mass., a Progressive, Prosperous and famous City in the Universe of Business, as a Pioneer in Cotton Manufacturing she has no Peer.

FEW INDUSTRIAL CENTRES HAVE SUCH A REMARKABLE RECORD—NONE HAVE BRIGHTER PROSPECTS IN THE FUTURE—HOW THIS CITY CAME BY ITS NAME—IT SUPPORTS ONE HUNDRED AND FIFTY DIFFERENT KINDS OF INDUSTRIES.



**F**EW industrial cities have such a remarkable record for development as has Lowell, the fourth city of Massachusetts and one of the greatest cotton manufacturing centres in the United States. Fewer have a brighter prospect in their future.

Scarcely a year ago Lowell celebrated the seventy-fifth anniversary of its birth as a city. It first took its present name in 1826 as an honor to Francis Cabot Lowell, the pioneer to whom the place owes the establishment of its great cotton-making industry. Previous to that it had been a part of the town of Chelmsford. Francis Cabot Lowell, Nathan Appleton and Patrick T. Jackson had been associated in a cotton manufacture enterprise at Waltham. In 1820—three years after Lowell's death—Appleton and Jackson looked into the possibilities of the Merrimac River as a water power for large factories, and within three years the nucleus of the vast mills of to-day was building.

Some years before Appleton and Jackson, who had associated Kirk Boott with themselves, went on their prospecting expedition, a canal had been built around the Pawtucket Falls to open navigation to and from the towns on the upper part of the Merrimac. In this these pioneer spinners saw their opportunity, and they promptly bought out the owners of the canal and organized the first cotton manufacturing company, which was incorporated eighty years ago this month and began active operations a year and a half later. Nine other mills and the great machine shops, which became a

necessary adjunct, followed rapidly within the next score of years, and to-day not less than \$15,000,000 are employed in this one of the city's 150 different kinds of industries.

## The Tremendous Water Power.

The wonderful water power which has played such a part in Lowell's growth and accumulation of wealth is now distributed through five different canals, which aggregate as many miles in length. They furnish 25,000 horse-power all told, the privileges being leased to the various concerns which use them. The ownership is in the hands of the corporation known from its early days as the Proprietors of the Locks and Canals on the Merrimac River, which has a Directorate composed of the Treasurers of the various mill companies. Incorporated in 1792 with a capital of \$50,000 this important factor in the Spindle City's prosperity is now capitalized at \$600,000.

Besides the cotton products which are its staple, Lowell makes a startling array of things. Not counting the great cotton mills, it boasts some 800 different manufacturing concerns, all of them flourishing in steady growth and prosperity.

Lowell's greatest growth has been in the last quarter-century, during which time the population doubled, being now in the neighborhood of 100,000. Its wealth has nearly doubled in the same time.



Since it was founded its territorial area has been increased from four square miles to eight, until now its total valuation is more than \$70,000,000, an increase of \$10,000,000 in ten years. The per capita wealth has been computed as \$815 and the per capita debt as \$33.

Of the people of the Spindle City 22,000 are mill employees, many of them French Canadians. The population is somewhat cosmopolitan, including many Irish, English, Swedes, Armenians and other foreigners. As far back as the early forties, when Charles Dickens, the great novelist, visited this country and made a stay in Lowell, the city was noted for the intelligence and good conduct of its working people, and it is one of its proudest boasts that there is no mill community in the country where there have been fewer labor disturbances and where the average of morality, intelligence, industry and thrift of the operatives is higher.

The good name and prosperity of the city are in no small measure attributable to these enviable conditions.

With its mercantile development, Lowell has, of course, become a more active shipping point every year. Its railroad facilities have, however, kept pace with its necessities and an immense amount of traffic, both passenger and freight, is handled at its two stations. It was one of the first places to be connected with Boston by rail, in 1835, and now it is one of the most important distributing points on the great trunk line system which runs to the North and East and West.

Fortunate in many ways, Lowell is more fortunate in none than in its civic government and the departments included under its management. Its police and fire departments have won noteworthy

commendation and its public school system is quite up to the high New England standard of education. Its public buildings are handsome and commodious and are all of them modern. A public library of 60,000 volumes and a memorial hall filled with patriotic and historical relics and commemorative tablets have a fine building which was especially

erected for their accommodation. The city has many fine examples of church architecture, and several of the private residences and estates will compare favorably with those to be seen in the suburbs of much larger places.

An attraction of which Lowell is very proud, and with much reason, is her park system. The principal park is at Fort Hill, which gives a beautiful, far reaching view that includes the mountains of New Hampshire and those which lie to the south and west, and passes over the splendid valleys of the Concord and Merrimac, crowded with history and legends.

It is easily and quickly reached from the heart of the business quarter of the city by electric cars.

The social life of the Spindle City is much more attractive than is usual in a manufacturing community. Club and other social organizations are numerous, the fraternal organizations being particularly well represented. The public charities are splendidly conducted and nowhere can there be shown a better record for generous efficiency.

The city is well supplied with modern homes—houses and apartments—and considering the lively demand which results from its rapid growth rentals are exceedingly moderate. Home influences are excellent. All of the leading Protestant denominations, the Roman Catholic faith and the Jewish sects are represented in the church life. The great associations which are the allies of the religious



CITY HALL, LOWELL, MASS.



bodies everywhere are vigorous and have done much for the city's good. The broad-mindedness and liberality which the great corporations have always shown in all their dealings with their employees are recognized as having no mean share in the general well being, too.

The municipality, the Board of Trade and the citizens at large stand ever ready for any service which might make Lowell attractive to the new-comer. Generous inducements are offered to capital to seek locations there, and to the spirit of friendliness and helpfulness which is characteristic of the place in all its dealings, is owing in some part, certainly, its prosperous increase in every way.

With such a history of constant growth, of virile strength, of worthy achievement, with such natural advantages and such modern facilities, it is not to be wondered at that Lowell is growing in population at the rate of about 4,000 a year and that its fame as a manufacturing centre has spread to the utmost ends of the earth.

## Patent Medicines.

There is one line of business in which Lowell is pre-eminent—the manufacture of patent medicines. The great establishments which have made the city their home since its young days have grown up with it astoundingly, and there is not a country on the face of the earth to which they have not penetrated.

THE J. C. AYER CO.—It was way back in the early forties when Dr. J. C. Ayer, the founder of the J. C. Ayer Co. of Lowell, Mass., first began compounding his Cherry Pectoral. He was a young druggist at the time, but increased sales of his medicine soon required his entire attention, and in 1848 he started a factory of his own.

The business moved from place to place as its increasing volume required greater room, until in 1857 it settled in its present location, which has been enlarged and remodeled time and again. Dr. Ayer was a born advertiser. In 1852 he began the publication of the now famous almanac, a novelty at that time, to increase the fame of the Cherry Pectoral. Taking into partnership his brother, Frederick Ayer, in 1855, the doctor found more time for experimental work, and in a short time other medicines—Ayer's Pills, Ayer's Sarsaparilla and Ayer's Ague Cure—were perfected and placed upon the market. In 1869 Ayer's Hair Vigor was first produced, and the business grew, waxed strong, and the advertising became more extensive, and besides a large amount of poster and newspaper advertising, an average edition of eight millions of almanacs were distributed annually.

The ceaseless activity in which Dr. Ayer lived had naturally begun to tell upon his health, and though he had abundant leisure in his latter days, his crowding care told upon his vigorous constitution, and he died in 1878, at the age of sixty. He was a man of indomitable energy, pluck and perseverance, and built up an establishment which has become famous throughout the world.

The present General-Manager and Treasurer, Dr. Charles H. Stowell, is eminently fitted, both by education and experience, to take up and continue the great work begun by Dr. Ayer. Dr. Stowell was graduated from the medical department of the University of Michigan in 1872, and after practising medicine for three years in Syracuse, N. Y., was recalled to his alma mater to fill a professorship, where he remained for thirteen years. During this time he held three professorships, one each in the medical, literary and law departments. He is the author of a number of books, some of which have been extensively used as text-books, and are so known to-day.

The main office covers considerably over 7,000 square feet, and is a fine example of the convenient business office of to-day. No expense has been spared in its equipment. Nearly one-half of this great room is devoted to the advertising department.

The percolating room, where the first step in compounding the Ayer remedies is taken, is a great room the same size as the main office four stories below it, and seems to typify the cleanliness and wholesome methods which characterize the Ayer process. This room has a series of great copper stills, and a tankage capacity of over 28,000 gallons.

## Electric Lighting.

The electric lighting system of the Spindle City includes, of course, both arc and incandescent lamps, and into its service every improvement is introduced promptly upon its appearance. The plant which furnishes the current is one of the best equipped of those in the smaller cities in the country.

LOWELL ELECTRIC LIGHT CORPORATION.—The Lowell Electric Light Corporation was organized in 1881. The company is capitalized at \$400,000. Since January, 1899, the company has been under the management of Stone & Webster, who made extensive additions to the equipment, and the plant is now capable of the best of service. It gives Lowell the lowest meter rate in Massachusetts. The officers are: F. R. Hart, President; Russell Robb, Vice-President; H. B. Sawyer, Treasurer and B. H. Dibblee, Secretary. Besides Messrs. Hart and Robb, the members of the Board



of Directors are: E. S. Webster, G. W. Lee, R. T. Paine, 2d, L. S. Webster and C. A. Stone. The company employs nearly three score of people in the City of Lowell, and is giving their patrons in that city the most satisfactory service. The main offices are located at 28 Bridge street, and their magnificent and excellently equipped power station is on Perry street. The following statement shows the progress that has been made by the Lowell Electric Light Corporation in the past three years:

	Gross receipts for year.	Station cap. in K. W.	No. inc. 16 c. p. equiv. con.	No. arc lamp con.	H. P. motors connected.
1899 .	\$136,000	1,552	22,940	1,013	1,253
1900 .	158,000	2,203	28,966	1,233	1,788
1901 .	179,000	2,348	32,788	1,319	1,869

## Gas Light Service.

The public service of this progressive city is admirable. It is splendidly lighted by gas, the mains for which have been so extended as to make the illuminant available to all of its people. The gas is of excellent quality and is so supplied as to be most economical. All the modern devices for heating and cooking by gas are made easily available to the consumer.

LOWELL GAS LIGHT CO.—No firm or corporation has a firmer place in the business world than a long-established lighting company, and the Lowell Gas Light Co., with its record of fifty-two years of efficient service of the citizens of Lowell, Mass., is no exception to the general rule. Established in 1849 as manufacturers of illuminating gas, coke, coal-tar and ammoniacal liquor, this company has been uniformly successful in its business life, and has grown with the city which it supplies with light. To-day it employs some 150 men, and its pipes form a veritable network beneath the streets of Lowell. It is capitalized for the sum of \$650,000. The affairs of the corporation have always been in the hands of business men of conservative, yet progressive tendencies, and as a result this company is firmly established as one of the business institutions of this bustling mill city. Its present management is in the hands of a president, treasurer and board of seven directors, as follows: President, Jacob Rogers; Treasurer, George S. Motley; Directors, S. G. Mack, Levi Sprague, A. G. Cumrock, Jacob Rogers, George S. Motley, Edward M. Tucke and Edward N. Burke. Modern appliances and modern methods characterize the large plant of the company, and the output is a very high quality of illuminating gas and the by-products which enter into so many other manufacturing industries of the day.

## Banking facilities.

Lowell's banking facilities are exceptional, for employers and employed have always been alike prosperous. The nine national banks have a combined capital of \$2,300,000 and undivided profits of \$1,250,000, and beside them there are two trust companies and seven savings institutions.

THE TRADERS' NATIONAL BANK OF LOWELL, MASS.—As an illustration of success, developed within a few years, in a conservative business, there is seldom found a more remarkable case than that of the Traders' National Bank of Lowell, Mass. This bank opened for business on July 1, 1892. Its deposits on December 31, 1892, amounted to \$299,021.98. Eight years later the deposits had increased to \$2,988,870.80, or nearly tenfold. Such a result as that could only have been accomplished with the best of management, the wisest judgment and the most careful business methods.

With these facts in view, it is interesting to note the names of the officials who are responsible for this success. They are: President, Chas. J. Glidden; Vice-President, William F. Hills; Cashier, Frederic A. Holden; Directors, John C. Burke, Michael Corbett, Solomon K. Dexter, Chas. J. Glidden, Othello O. Greenwood, William F. Hills, James H. Mills, Clarence H. Nelson, Asa C. Russell, Robert Simpson and Jesse N. Trull.

The Traders' National Bank has a central and convenient situation on Middlesex street and Post Office avenue, Lowell, Mass., a site which is next door to the Post Office. This bank makes a specialty of bank collections in Lowell, Lawrence and Haverhill, Mass., and Nashua, N. H. It has a Foreign Exchange department, also a Savings department, and a suite of elegantly appointed rooms for lady patrons which enables this bank to make a specialty of handling women's accounts.

## Making Stockings.

An interesting branch of Lowell's textile industries is the manufacture of stockings. The setting up of knitting machines marked a decided advance on America's part in furnishing the world with its styles and with the means of meeting fashion's exacting requirements. The Lowell stocking mills have had their weight in disproving the old-fashioned idea that to be good fine articles of personal wear must be imported, and in establishing the fact that no goods can be better than those "made in New England."

SHAW STOCKING CO.—The trade mark, "Shaw-knit," is a familiar one to almost everybody in New



England, and it is known throughout the country. Hosiery bearing the "Shawknit" trade mark is the product of the mills of the Shaw Stocking Co., a corporation established on October 16, 1877, under a Massachusetts charter, with a capital of \$360,000. Of the three mills operated by this concern in Lowell, Mass., two are devoted to the manufacture of hosiery, including cotton, wool merino, linen, worsted and lisle. The third mill, which is a recent addition, having been started in May, 1901, is used for the manufacture of fine-combed Egyptian yarns from which the hosiery is made. These mills employ 550 operatives. By making its own yarns this company is enabled to see that only the finest grades of cotton are used and also to determine that none but skilled operatives be employed in producing the yarns. This concern also dyes its yarns, using a variety of colors, and thus it is possible to insist upon fast and safe colors. About 100 different styles are shown.

The officers of the Shaw Stocking Co. are: President, Frank J. Dutcher; Treasurer and Manager, William E. Hall; Superintendent, Chas. F. Libby; Directors, Frank J. Dutcher, E. W. Thomas, Amasa Pratt, John Scott, E. A. Thissell, F. R. Shedd, O. H. Moulton, George A. Draper and George S. Motley.

## **Ammunition.**

Every sportsman in the country knows the ammunition which comes from the Spindle City, no doubt, and foreigners have been making its acquaintance rapidly and with much mutual satisfaction in the last few years. Indeed, it would be hard to find another place so generally known and so well thought of for what it supplies the rest of mankind with as Lowell.

## **famous Bunting.**

Prominent among Lowell's manufactures is bunting. Lowell bunting is as widely known as the city itself, almost, and for the same standard qualities—strength, brightness and permanency. It has carried the national colors all over the world, and with them the fame of the place of its production.

UNITED STATES CARTRIDGE CO.,

LOWELL, MASSACHUSETTS.

ESTABLISHED 1869.

MANUFACTURERS OF

AMMUNITION, BRASS AND COPPER GOODS.

GOVERNMENT CONTRACTORS.

AGENCIES:

U. T. HUNGERFORD BRASS AND COPPER CO.,

121 WORTH STREET, NEW YORK, N. Y.

CHARLES SONNTAG & CO.,

116 MARKET STREET, SAN FRANCISCO, CALIFORNIA.

CHARLES W. DIMICK,

216 WASHINGTON STREET, BOSTON, MASSACHUSETTS.

U. S. BUNTING CO.,

MANUFACTURERS

FANCY WORSTEDS, SURGES AND DRESS

GOODS,

LOWELL, MASS.

W. H. AND W. H. LEWIS & CO.,

BOSTON AGENTS,

76 BEDFORD STREET.

NEW YORK,

PHILADELPHIA.





# The Boston Journal's New Building, a Million Dollar, Eleven Story Structure, and a Model Plant.

IT WILL BE THE NEWEST AND MOST ATTRACTIVE FEATURE OF NEWSPAPER ROW—SOMETHING ABOUT THE PAPER THAT HAS BEEN AN IMPORTANT FACTOR IN NEW ENGLAND FOR NEARLY FOUR SCORE YEARS.



THE erection of the largest and finest newspaper office in New England on the busiest and costliest corner of Boston is simply another mark of the rapid strides which the *Boston Journal* has been making. It is the crown wrought by nearly seventy years of enterprise, of constant progress, of the conservatism on which is built confidence and respect, and the building itself will typify the newspaper which it is to house.

The new Journal Building will cover not only the site where the *Boston Journal's* home stood for forty years, but the large corner plot next to it.

The magnificent structure rising on this magnificent site is to be eleven stories high, rising well above all of its surroundings. It will be finished to the minutest detail with all of the marvelous perfection of the modern skyscraper and of the most complete establishment for the publication of a daily newspaper. Its total cost is set at \$1,000,000.

As the great Republican newspaper of Republican New England the *Boston Journal* long ago attained a growth which made its former five-story home, in its time the finest building of the kind in the six States, seem cramped. When the necessity for more room became urgently pressing it was evident that the enlargement of the ground area to include the old structure and the building next to it, a part of which the *Journal* had used for years, would require the complete demolition of every wall, and extensive excavation. Without the disarrangement by a minute of the exacting schedule of a great daily the *Journal* plant was moved to temporary quarters and the work of tearing down and building up began immediately.

The new Journal Building will be typical of what might be called "the commercial skyscraper" in its most modern form, and will crown the third era of high buildings in Boston. For the first class of buildings whose tops reached up into the sky above their neighbors was the churches, with their piercing steeples. Following this religious type came the Governmental, illustrated by the shining dome of the State House and the lofty Federal building.

Of the commercial type the Ames Building may be said to be the pioneer, but, although its frame is of steel, yet the science of building had not at that time so far progressed as to depend upon this frame for the strength and stability. The walls were, therefore, made of great thickness, and space thus lost which in the building of to-day is carefully utilized.

Besides the eleven stories of the Boston Journal Building towering above ground there will be three stories wholly under ground. So great is the value of land on a site such as that of the Journal Building that it is desirable to construct as many stories as possible. The Massachusetts law limits the height above ground. The alternative is subterranean construction, and modern invention and ingenuity make it possible to fashion there comfortable and healthful quarters.

Going forty feet below the level of the street the *Journal's* new home will provide unequalled accommodations for the paper's heavier machinery. Modern construction will make it possible for the direct light to penetrate the depths of the three stories below the level of the street, and improved ventilating apparatus will keep the air pure and of comfortable temperature. In the lowest basement



the boilers and dynamos are to be placed; above them will be the press and stereotype rooms; and then, directly beneath the ground floor, are located the mailing room and distribution department. The stereotype room will be connected with the composing room 150 feet above it by a novel compressed air form lift, by means of which the locked pages may be sent up and down in a matter of a few seconds.

The first two stories of the new Journal Building will be unique in Boston. The walls will be of polished granite, a material to be found in no other building in the city. Moreover, the lower story of that stone will have a still further distinction, in that it will be a beautiful bronze green granite, of which no other specimen exists in a New England building, and only one or two specimens in the country.

This bronze granite has a little history of its own. It seems that Mr. McKim, the architect, discovered a quarry of the stone up on Mount Ascutney, near Windsor, Vt. Its beauty and grain delighted his artistic taste, and nothing would satisfy him but that Mr. Norcross, the big contractor, should travel with him up into the Green Mountain State, climb 500 feet up that precipitous hill and look at the wonderful stone. The quick and practiced eye of Mr. Norcross saw at once its ornamental value, and his firm, who are

now constructing the new Journal Building, will use it on this lower story.

When the Trustees of Columbia College were looking for a handsome marble for inside decoration of their new library, they could find no marble

from which they could get a stone large enough for the big pillars in the hall. Then it was that they were attracted by the polished bronze granite, and they substituted it for the planned marble. It has given a very beautiful effect. In fact, scarcely any one who enters the library is able to tell that its columns are not of marble instead of granite.

The location of the Journal Building is the most central point in the business district of Boston, which makes it the very heart of New England's life. It is an ideal situation for an ideal newspaper office, and the eleven stories of the new Journal Building, towering above all that surrounds it, will become the most striking landmark in twentieth century Boston.

The recent development of the business section of the metropolis of New

England as it has been outlined by the erection of many large office buildings, circles about this corner of Washington and Water streets, and the Journal Building will stand in its very midst. The site is close to the most important mercantile and governmental interests in the city. A few steps away



BOSTON JOURNAL'S NEW BUILDING.



is the Federal Building, in which the general Post Office and the direct representatives of the National Administration are housed. Half a block distant in the other direction stands the City Hall, and back of that the old Court House, now the headquarters of many of the important municipal departments, with the registry of deeds close at hand.

The Court House where the State and city judiciary sit is convenient of access to the west, and just beyond it, crowning Beacon Hill, is the State House, the political heart of the Commonwealth. In the other direction, toward the harbor, are the Chamber of Commerce and the Custom House, the centres of maritime and commercial importance for the New England States, not far from them the water front, with its great piers and docks, the birthplace of American shipping.

State street on the north, and Milk street on the south, a block in either direction, mark the boundaries of the great banking centre of Boston. Here are the Trustees of interests mounting into millions, the representatives of wealth and commercial position, the institutions which guard the financial well-being of the municipality and its citizens, among them the famous Stock Exchange. The North and South Union Stations, from which Boston stretches out its hands to the whole continent, are about equidistant from the site of the new building, also. So all of the highways to and from the chief points of a great city's strength lead to the *Journal's* corner and to a newspaper for which they are sources of important information. This means much.

Many places of historical importance, which visitors to Boston delight to see, are near this central point, too. The Old State House and the Old South Meeting House are but a step or two on either side. The scene of the Boston massacre, Faneuil Hall, King's Chapel, the old Granary Burial Ground and Boston Common are all within a short distance of this corner. Indeed, ever since Boston was founded in 1630, the site of the Journal Building has always been a centre of action. In the early days of the settlement of Boston the inhabitants passed close to this spot to obtain drinking water from the old spring. Thus from early times to the present time, the people of Boston have looked upon this locality as the most familiar part of the city.

Naturally enough, so favored a situation has a large value from a commercial standpoint, and it is not surprising that in the recent transfer of this

property the enormous price of \$170 per square foot was paid, a larger price than has ever been paid for a parcel of that size since Boston was founded. A layer of silver dollars over the entire area of the Journal Building site would represent barely one-third of the total value of that land.

The *Journal's* offices on the ground floor of the building have been sumptuously planned by Messrs. Everett and Mead, the architects. At one side of the counting room the advertising department is to have a handsome reception room connected with the offices, and the solicitors' desks find place in a gallery above. Back of the advertising manager's room will be the business manager's, and back of that the general manager's.

The eleventh floor—which, by the way, touches the limit set by law upon the height of buildings in Boston—is set apart for what is planned as the most perfectly appointed composing room in the country. A balcony will run about its four sides, and there the proof-readers will be located. The great cut cabinet, containing the 20,000 and more plates which have brought to the *Journal* the name of "the paper with the photographs," and the various card catalogues, which are its keys, are to find place in this same balcony, so that all of the departments on which the typographical and illustrative features depend will be in close touch.

The floor below is to be occupied by the various news and feature departments. The city and telegraph rooms, Sunday, sporting and magazine editors, art department and reference cabinets and library have been grouped about the managing editor's room so as to make for the greatest possible practical convenience.

The offices of the publisher of the *Journal* are to be a specially finished suite on the first floor of the building above the counting room. Concentration of energy and ease of control have been kept in mind throughout, while the space is everywhere generous, and the proportions are large.

Such a perfectly equipped establishment is the natural home of a newspaper like the *Boston Journal*, which has already passed three score years and ten—indeed, its seventy-fifth birthday falls in the next year. Its record of usefulness, enterprise and sound judgment, its political stanchness and its reliability have won it a high place among the great dailies of the country and have secured to it the second largest home circulation among New England newspapers.

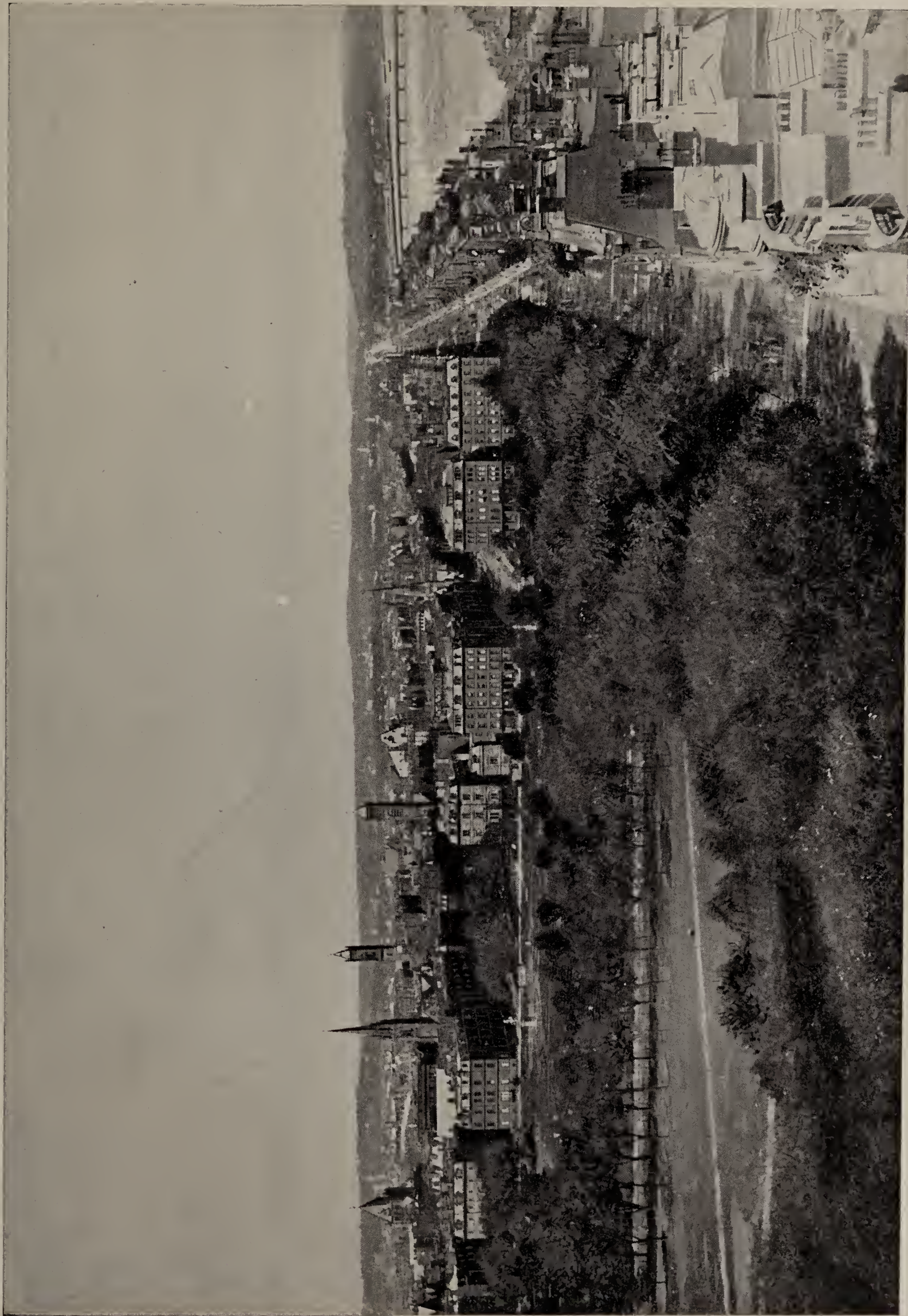




1902







PANORAMA OF THE BACK BAY DISTRICT OF BOSTON.—From the Common.



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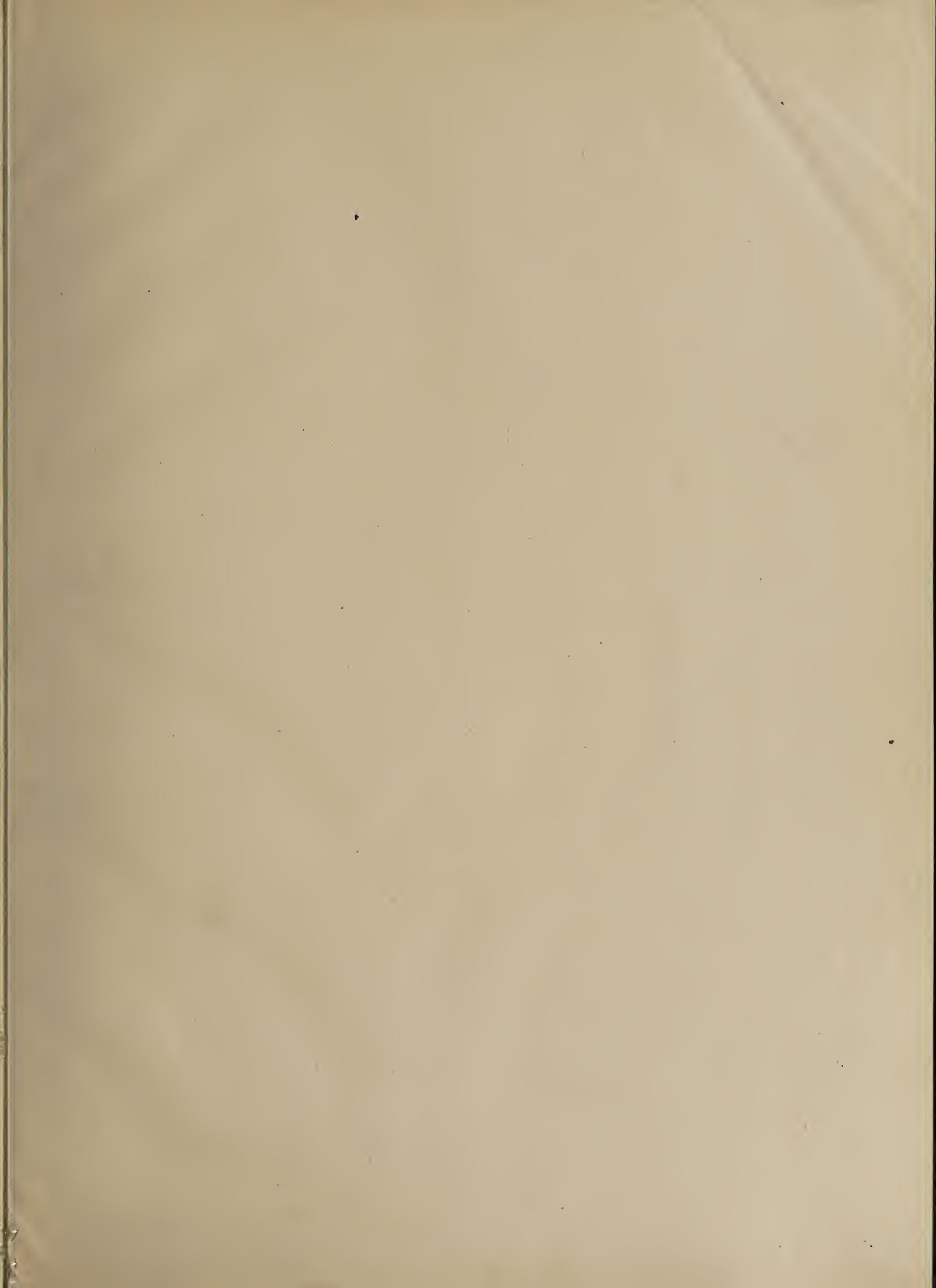
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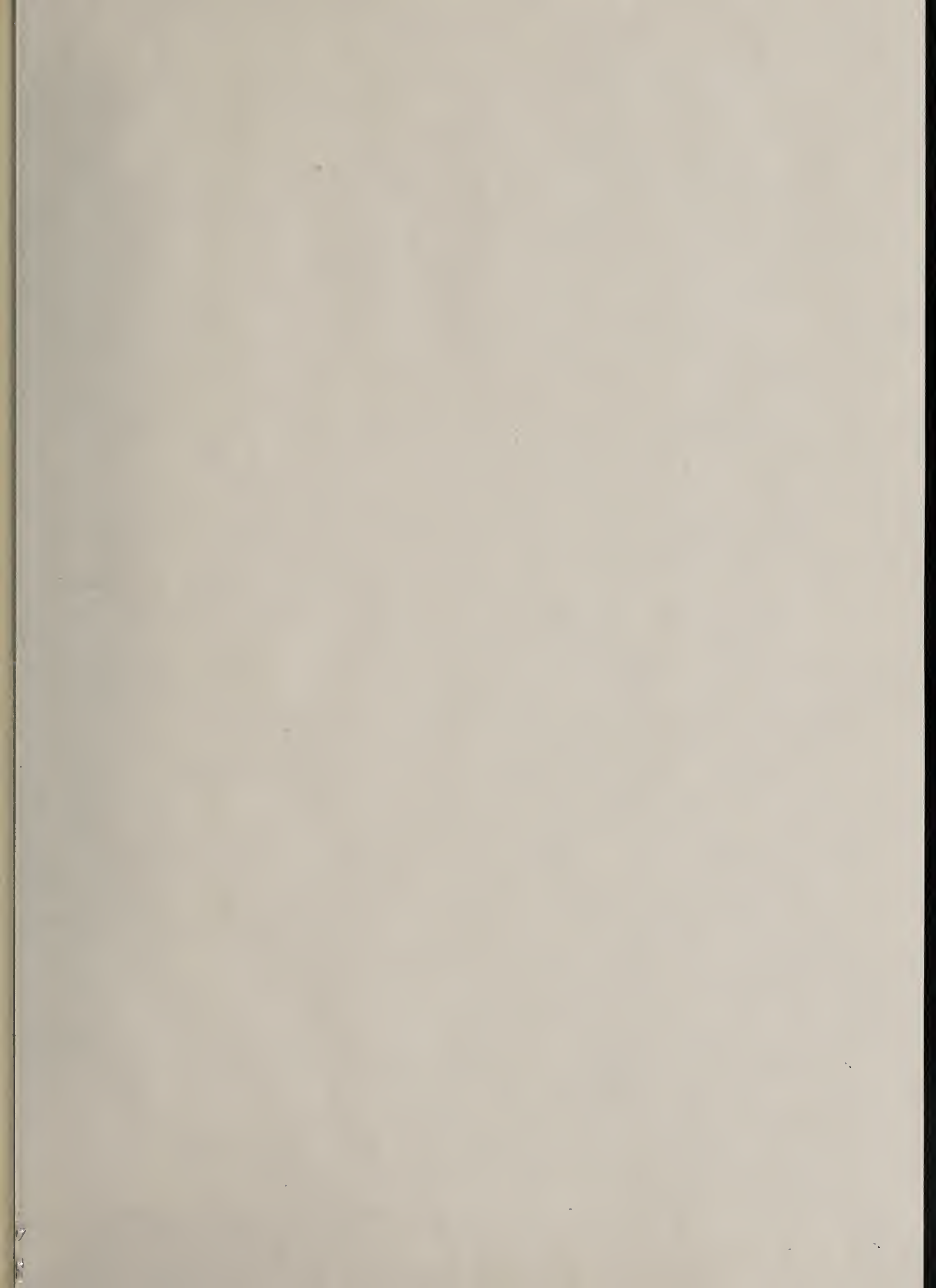




















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